TELEPHONE ENGINEER and MANAGEMENT

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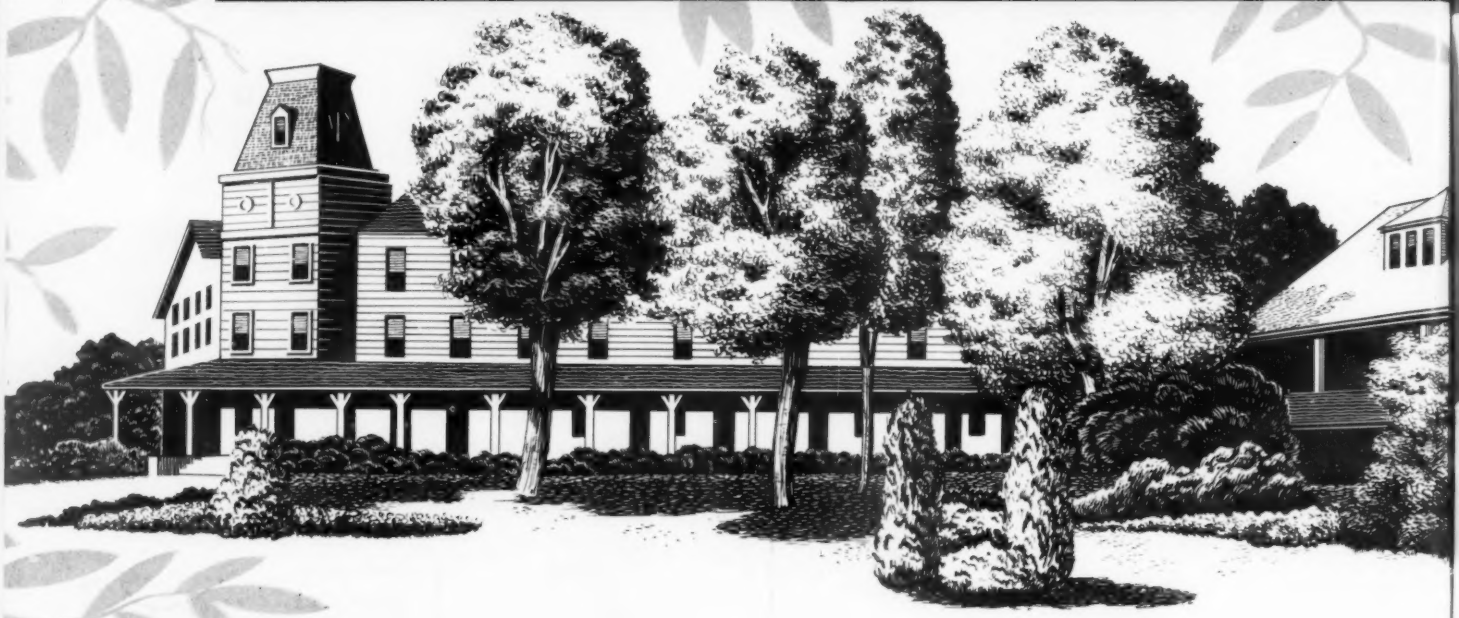
CAMBRIDGE SPRINGS, PENNSYLVANIA



Cambridge Springs is known the world over as a mineral water resort.

The chief occupation of this city is playing host to its 20,000 or more annual visitors. Many of these yearly guests are individuals who come for the benefits of the mineral springs, others are convention delegates or representatives sent to periodic meetings of large eastern corporations. The roster of organizations which hold regional meetings at Cambridge Springs looks like an excerpt from "Who's Who in Industry". Its popularity among organizations is not accidental. Cambridge Springs has the facilities to make these meetings successful. The city has five large resort hotels including the Riverside which is situated in the midst of a 425 acre estate and includes the internationally famous Riverside Golf Club. It has been said that Cambridge Springs has a history similar to that of 100 or more Pennsylvania cities — but there the similarity ends. Close examination of the city prov this to be true.

It takes first hand examination of many situati and organizations to determine the differenc That is why we urge you to contact our represent tive for complete information on our Directo Publishing Service. OUR SERVICE IS COMPLET Get the facts and then make a frank comparis in the privacy of your own office. We are certa that the prospects of increased good will amo your subscribers and increased revenue from yo directory operations will convince you that o service offers outstanding advantages to yo company.

We are now publishing telephone directories f more than 3600 communities across the nation. T Pennsylvania Telephone Corporation which serv Cambridge Springs is one of the companies f which we have been producing successful dire tories for over thirteen years.

GENERAL TELEPHONE DIRECTORY COMPANY

Telephone collect or write to one of the offices listed below for a representative to contact you.

EASTERN OFFICES

185 North Wabash Avenue, Chicago 1, Illinois - Telephone — STate 2-5478
G. Daniel Baldwin Building, Erie, Pennsylvania - Telephone 2-4187
420 Columbia Street, LaFayette, Indiana - Telephone 4854
Washington Building, Madison, Wisconsin - Telephone — Fairchild 6026

WESTERN OFFICES

604 Pine Avenue, Long Beach 12, California - Telephone 6-7221
1220½ Texas Avenue, Lubbock, Texas - Telephone 2-6330
Peyton Building, Spokane, Washington - Telephone — Main 8644

DIRECTORY ADVERTISING SALES UNITS LOCATED IN THE FOLLOWING STATES:
California, Illinois, Indiana, Michigan, Missouri, New York, Pennsylvania, Texas, Washington, Wisconsin

McCABE-POWERS AUTO BODY CO., 5900 N. Broadway, St. Louis 15, Mo.

Please furnish us literature on the following Powers Bodies:

☐ Service Bodies ☐ Meter Installation
☐ Construction and Maintenance Bodies

Special Equipment

☐ Forestry Bodies ☐ Pole Trailers ☐ Compressor Bodies
☐ Aerial Ladders ☐ Winches ☐ Pole Derricks

Company_____

Individual_____ Title_____

Street Address_____

City_____ State_____ 6

before you buy any utility bodies for 1950

Look-

AT THE FEATURES YOU GET IN

POWERS

PUBIC UTILITY BODIES

- Electrically welded all steel construction.
- Recessed slam action handles with cylinder locks.
- Extra large compartments with shelving and partitions for materials, tools and supplies.
- Triple-seal weathertight compartment doors.
- Saf-T Rolled Edges on all shelves and partitions.
- Remountable on new chassis.
- Clean Functional Design.

MAIL US the coupon above now for complete literature on POWERS' Public Utility Bodies for 1950! We'll send you informative material which thousands of utility men are finding very helpful in deciding on new equipment for next year's operation. Thus you can enter your 1950 budget conferences with the kind of data your management finds most useful in making equipment decisions! Thousands of POWERS' Public Utility Bodies are in use on large and small construction, maintenance and service operations. That's why POWERS is a favorite "buy-word" in the field today. You'll find them highly popular with line crews, who are enthusiastic about their efficient design, special features, ease of handling and many work-saving conveniences. Vitally important, your management will be impressed with POWERS' competitive pricing, as well as the economy of operating and maintaining these "work horses" of the public utility field. Contact us for full information — *mail the coupon above now!*

Delivery when you want it!

POWERS

PUBIC UTILITY BODIES

"Bodies for '50!"

McCABE-POWERS AUTO BODY CO. • 5900 NORTH BROADWAY • ST. LOUIS 15, MISSOURI

Across The Editor's Desk

Thank all of you for your letters regarding our Editorial that appeared in the August issue entitled "Some Things the Public Should Know". You will perhaps be interested in knowing that this Editorial has been reproduced as a newspaper advertisement in 19 papers to date. It has been reproduced by 3 state association secretaries for distribution where it could be of much assistance to telephone companies. Too, we are honored that it was reproduced as the inside cover feature of several company telephone magazines. All of our editorials, although copyrighted, may be used by our readers without permission if you will give credit to this company and mention the copyright. We would like a copy of your reproduction for our files.

• • •

It is now evident that fishing is a hobby almost universally enjoyed by telephone men. State telephone association officials are finding their attendance is larger if their associations meet in locations where recreational facilities include the piscatorial sport. Officials of the Virginia and Florida associations must have had this in mind when they picked Old Point Comfort, Va. and Daytona Beach, Fla. as their recent convention locations.

• • •

The youngest old timer we know in our industry is D. J. (CAP) WHITE, boss man of the Everstick Anchor Company, Fairfield, Iowa. Cap disdains the use of hat, cap or topcoat and tells us he has never found use for any of them. His ruddy and healthy appearance bears him out. His endurance and activities are a marvel to all who know him.

• • •

Independent telephone people in Missouri are mourning the death of A. WAYNE BERRY of Cape Girardeau. His death, following a lingering illness, ended a long and honorable career in our industry. He was a past president of the Theodore Gary Chapter of the Independent Telephone Pioneer Association, as well as a civic leader.

The National Telephone Magazine

TELEPHONE ENGINEER and MANAGEMENT

NOVEMBER, 1949 **VOL. 53, NUMBER 11**

Editor, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
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FRONT COVER: Important chapter in rapidly growing history book of television recently was completed to bring network service to Dayton, Columbus and Cincinnati, Ohio. Cover picture shows A T & T line crew after its members had erected marker stub to indicate location of coaxial cable. (Photo, courtesy of The Ohio Bell.)

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Announcing

The LORAIN SUB-CYCLE RT-UNITS

PACKAGED POWER for P. B. X. and SMALL SWITCHBOARDS

R Stands for ringing. T stands for talking. An "RT-UNIT" combines in one cabinet both ringing and talking power supply.

10 NEW MODELS in 5 CABINET SIZES

RT-UNITS

MODEL RT-1
3½ Watts, 20 Cycles
BC Self-starting Sub-Cycle
+.87 amp 14-28V. DC Supply for talking
+.5 amp unfiltered DC for signalling
+10 ±1V. and 20 V. ±2V.
60 Cycles for signalling

MODEL RT-2
3½ Watt 20 Cycle BC self-starting Sub-Cycle
+2 amp 34 ±6V. DC talking supply

MODEL RT-3
3½ Watt 30 Cycle BC self-starting Sub-Cycle
All other features same as Model RT-1 but less expensive

MODEL RT-4
3½ Watt 30 Cycle BC self-starting Sub-Cycle
All other features similar to Model RT-2 but less expensive

T-UNITS

DC POWER SUPPLY PROVIDES

MODEL T-1
0.87 amp 14-28 V. DC for talking
0.5 amp 18-28 V. DC for signalling
10 ±1 V. 60 Cycles for lamps
20 ±2 V. 60 Cycles for buzzers

MODEL T-2
2.0 amps 34 ±6 V. DC for talking

MODEL T-3
0.5 amps 22-30 V. DC for talking

MODEL T-4
1.0 amp 40-52 V. DC for talking

SUB-CYCLE

RING POWER SUPPLY
BIASED-CORE (BC)

Self-starting, protected on overload
Model BC-30X — 50 ma. 30 Cycles 100-115 V.
Model BC-20X — 50 ma. 20 Cycles 75-95 V.

Sold Through Leading Telephone Distributors—or Write for Bulletin 158

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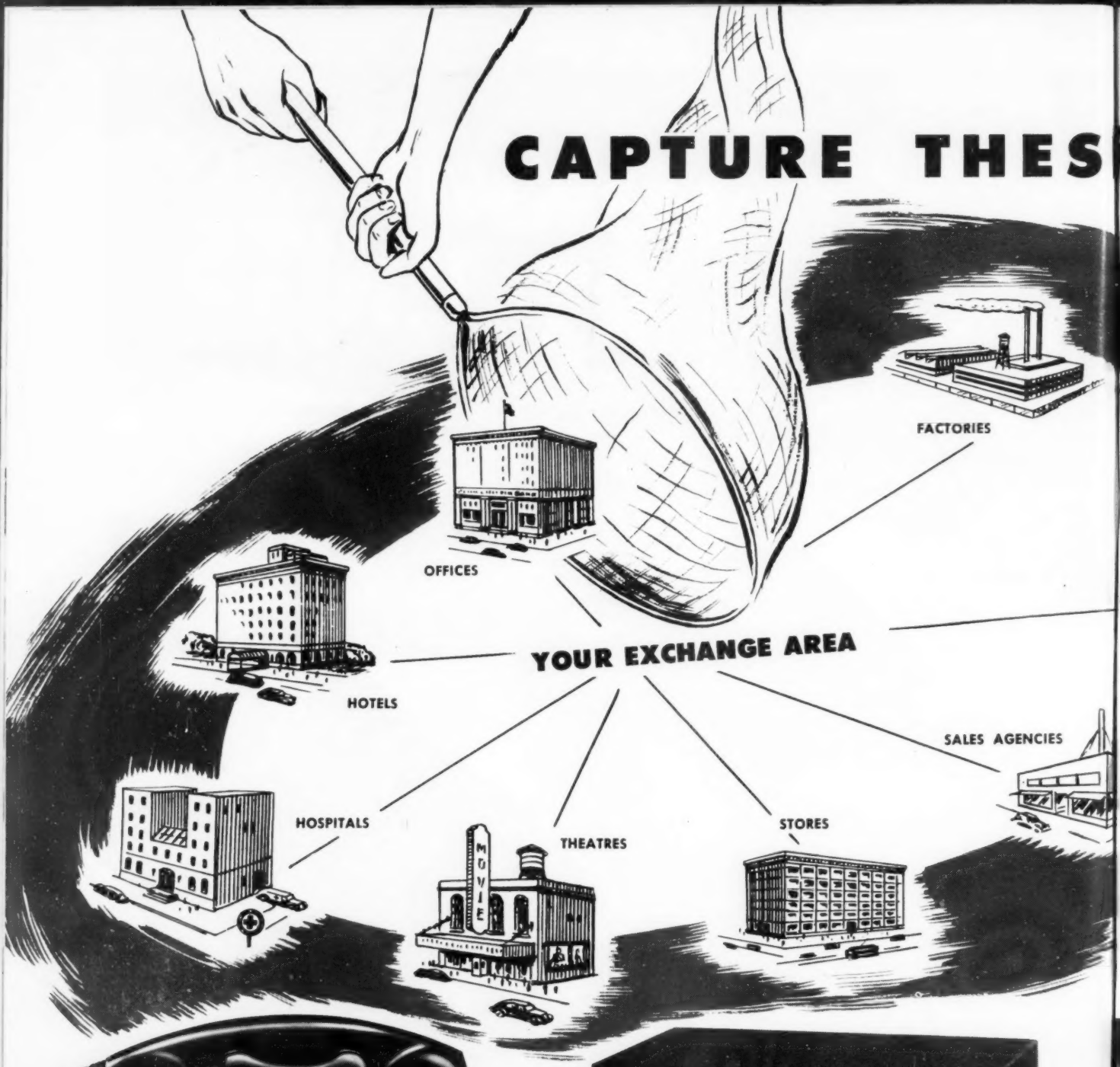
FLOTROL
PARTNERS IN DEPENDABILITY
SUB-CYCLE

CAPTURE THES



Above: 1000 SERIES MASTERPHONE is the natural choice for use with Kellogg Key-BX systems. Its complete dependability assures subscriber approval.

Above: KEY-BX BOX is small and compact for desk use at each station. Calls are completely controlled with push button keys.

Right: RELAY EQUIPMENT C showing how strip of truck r easily plugged in for use w truck circuits are needed. C designed for easy wall moun convenient location.

KELLOGG SWITCHBOARD AND SUPPLY COMPA

Established 1897

KEY-BX SYSTEM

6650 SOUTH CICERO AVENUE • CHICAGO

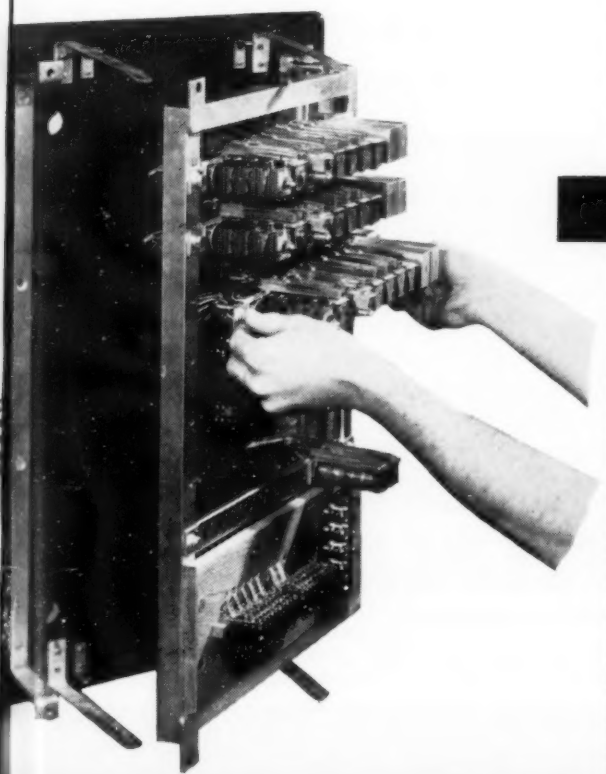
SOURCES OF EXTRA RENTAL INCOME

with

KELLOGG KEY-BX SYSTEMS

Your exchange area with stores, factories, sales agencies . . . a wide variety of businesses . . . offers a rich source of extra service rental revenue for you—with the help of Kellogg Key-BX Systems.

Business men realize today's need for fast, efficient telephone service within their own organizations. They're quick to recognize how a Key-BX System can provide them specialized telephone service without the need for a switchboard attendant system.



Further flexibility permits every person to have access to all incoming or outgoing lines to the telephone exchange. Anyone within the organization can signal and talk with anyone else. Conference calls can be accomplished with the flick of a switch.

Check into the sources of extra service revenue in your area and put Key-BX Systems to work. Ask your Kellogg representative or write direct.

SELECT A KELLOGG KEY-BX SYSTEM TO MEET YOUR SUBSCRIBER'S NEED

6-2-20 System provides for 6 trunks to the telephone exchange, and 2 inter-communication circuits for 20 local telephones.

6-2-10 System provides for 6 trunks to the telephone exchange, and 2 inter-communication circuits for 10 local telephones.

3-1-10 System provides for 3 trunks to the telephone exchange, and 1 inter-communication circuit for 10 local telephones.

2-2-10 System provides for 2 trunks to the telephone exchange, and 2 inter-communication circuits for 10 local telephones.

(All systems may be used with either common battery manual or dial main exchange)

MAIL COUPON TODAY

Kellogg Switchboard and Supply Company
6650 So. Cicero Avenue, Chicago 38, Ill.

Please send me more information about Kellogg Key-BX Systems and how they will help bring me extra rental revenue.

NAME .....

COMPANY .....

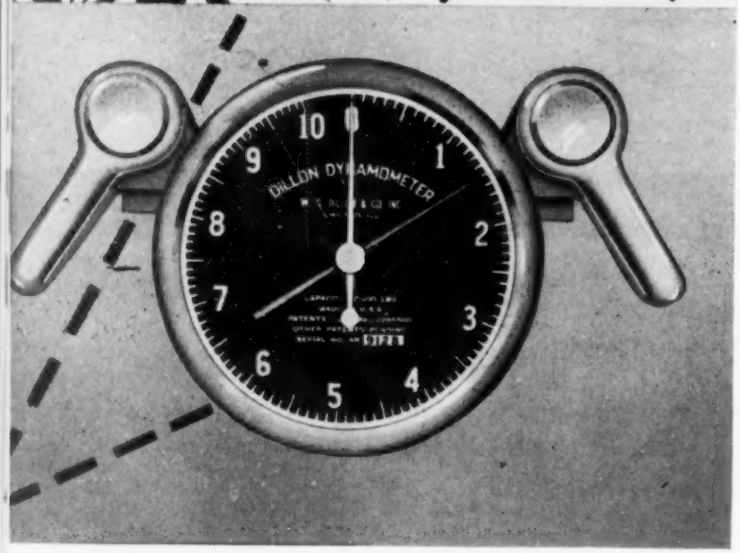
ADDRESS .....

CITY ..... STATE .....

Factory and Offices of
Kellogg Switchboard and Supply Co.

Manufacturers as well as distributors of the finest quality equipment and supplies for the independent telephone field for over fifty years.

Neat, Precision Soldering is easy when you use a Vulcan Electric Solderi Iron. The high-powered heating element assures a long life of unimpair heat production. These VULCAN ELECTRIC CO. irons come in 15 siz of screw and plug tip types—including the "Pygmy" tool, (shown at to for delicate work in cramped spaces. Copper tips are easily replaceabl



Guard Against Overstrain and wire service failures with the Dillon Dynamometer. With it you can register in pounds the exact load on wire, messenger or guy strand. This helps prevent devitalization of wires due to overstrain, by aking sure tension is correct. Made by W. C. DILLON & CO., INC., it's small, light and easy-to-use.

for

EASIER ORDERING
PROMPT HANDLING
QUICK SHIPMENTS

...send your next order to KELLOGG

When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

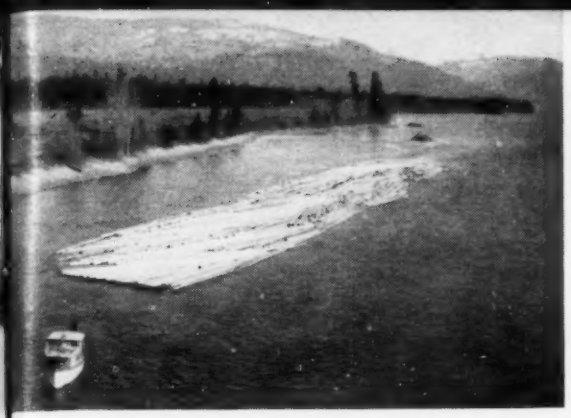
For Service from a Nearby Distribution Point, Order Your Line Supplies from

KELLOGG SWITCHBOARD AND SUPPLY COM

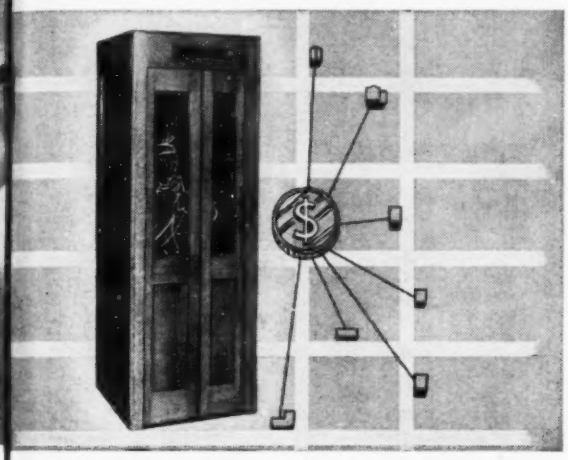
SUPPLIES

Factory and General Offices: 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILL
Branch Offices: KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES

ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FR

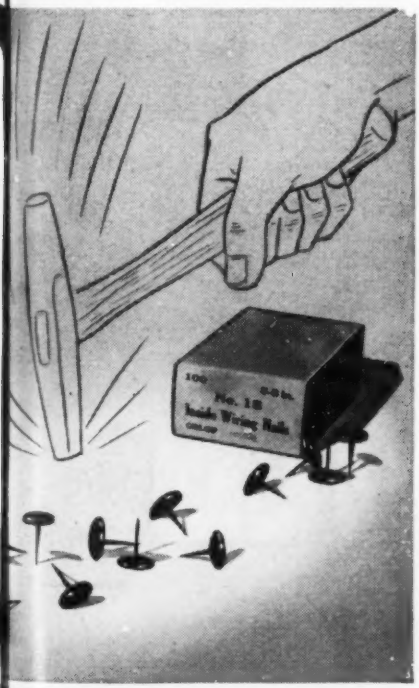


Famous for Strength and Durability, Northern White and Western Red Cedar poles flow toward the MAC GILLIS & GIBBS CO. plants in a steady stream. There they're processed and creosote-treated to insure longer life. Order Mac Gillis & Gibbs poles and watch your replacement costs drop.



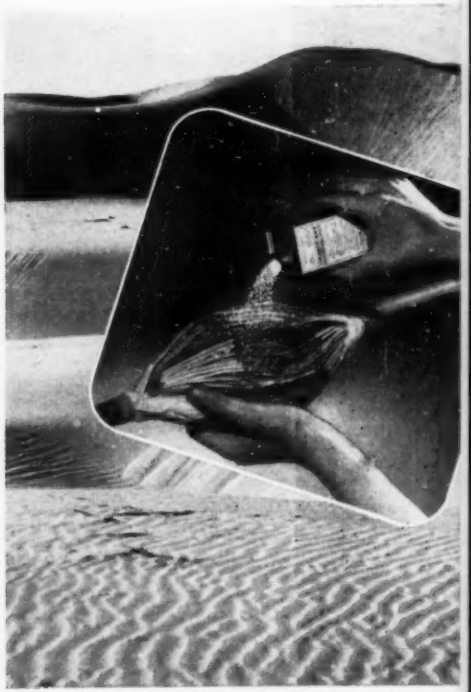
Make Every Station a Paying Location! Modern Churchill booths attract extra patronage everywhere. That's because they give the public the privacy, roominess and comfort it wants. Above is the CHURCHILL CABINET CO.'S No. 00 Booth, with automatic light switch and ventilator.

Get Maximum Battery Performance by choosing Gould Planté and Floté Batteries exclusively. They're built specifically for full float service over amazingly long periods of time. Telephone men everywhere find they cut maintenance and replacement costs to a minimum. Manufactured by GOULD STORAGE BATTERY CORP. Write for details.



Why do it the hard way? Making neat installations is *easy*—with Rhodes Wiring Nails! Designed for telephone work with quality insured against driving, bending, withdrawing and immersion tests. Made by M. M. RHODES & SONS Co., in several colors and pin-lengths.

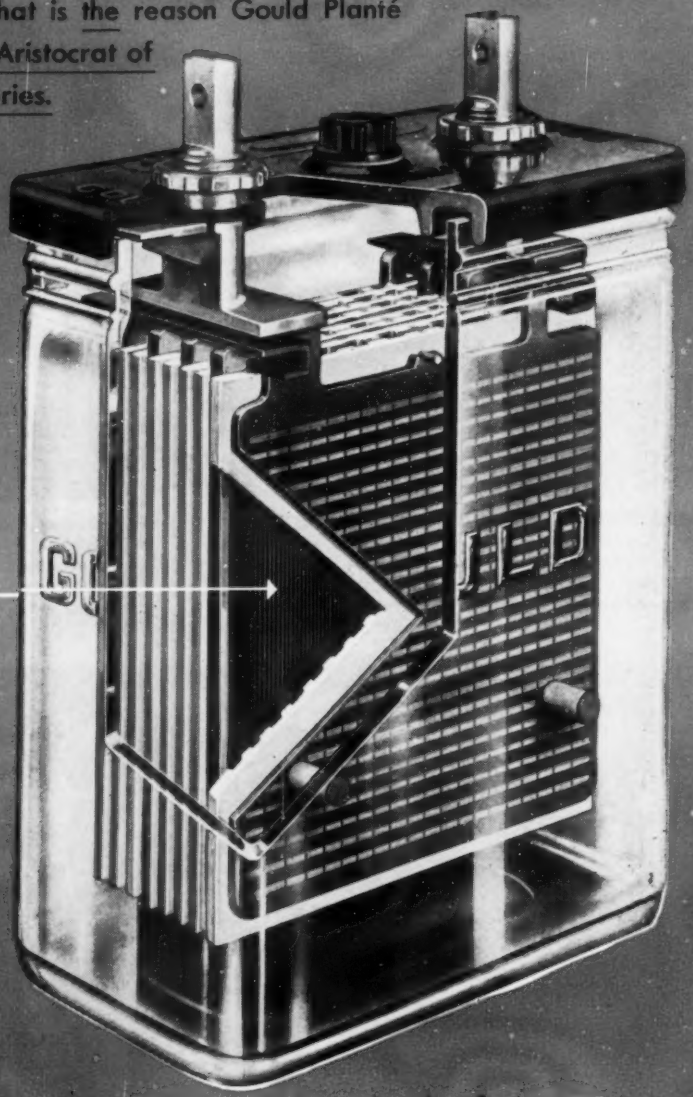
Reliable . . . Economical! "Eveready" "Columbia" "Gray Label" telephone dry cells give you dependability, plus economy thru higher sustained voltage and extra service life. Made by NATIONAL CARBON CO., INC. Specify them to assure highest operating efficiency.



Drier Than the Driest Desert! Drierite Dessicant is the safer way to dry splices in lead-covered cables. It absorbs all moisture; makes the splice the driest part of the cable. This W. A. HAMMOND DRIERITE COMPANY product will not harm conductors or insulation.

HERE'S WHY YOU GET LONGER LIFE WITH GOULD PLANTÉ

Planté positive plates are pure lead. They contain no antimonial impurities to contaminate the negative plates. That is the reason Gould Planté is universally accepted as the Aristocrat of Stationary Batteries.



PURE LEAD MEANS SERVICE

Batteries on full float service require a small current to offset normal self-discharge. This self-discharge is due primarily to migration of antimonial impurities from the positive grids or grid frames to the negative plates. As the self-discharge rate increases, more and more antimony is transferred to the negative plates. The cycle is repeated with increasing tempo until the positive grid fails completely.

Gould Planté batteries contain no antimonial impurities. Their voltage requirements and capacity remain constant throughout their amazingly long, low-cost life.

GOULD'S COMPLETE LINE

Other Gould types—Floté, Kathanode and Dreadnaught—are designed to meet the diverse capital expenditure, cost, service, and capacity requirements of switchgear, alarm system, emergency light and power, or telephone battery users.

The Gould "Battery Selector," GB-852, gives full information. Write for your copy, now.

GOULD

STORAGE BATTERY CORPORATION

TRENTON 7, NEW JERSEY

Always Use Gould Automobile and Truck Batteries

LOWELL

since 1903 one of the country's
first manufacturers of . . . . . .

insulated wires

founded 1903

now
offers

drop wire
&
inside
telephone wire

write for
samples, prices,
and Lowell's
unequalled guarantee.

Your specifications will be met (and guaranteed) with whatever type of insulation or conductor is desired.

Jackets of Neoprene, rubber or plastic.

Conductors of copper, bronze, copperweld, aluminum, iron, etc.

. . . also, a complete line of all types of insulated telephone wire—outside or inside.

The Overlakes Corporation

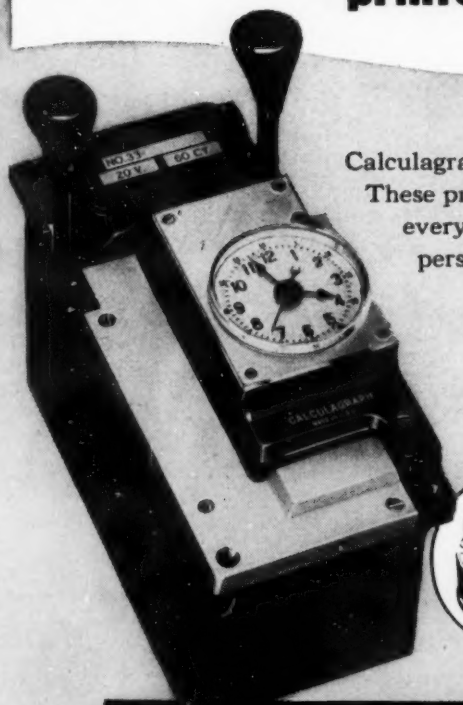
LOWELL Insulated Wire Division

Lowell, Massachusetts

If your toll call revenues depend on PENCIL work!

CALCULAGRAPH

is one sure way to collect all the revenue due with accurate, automatically calculated, printed toll time records



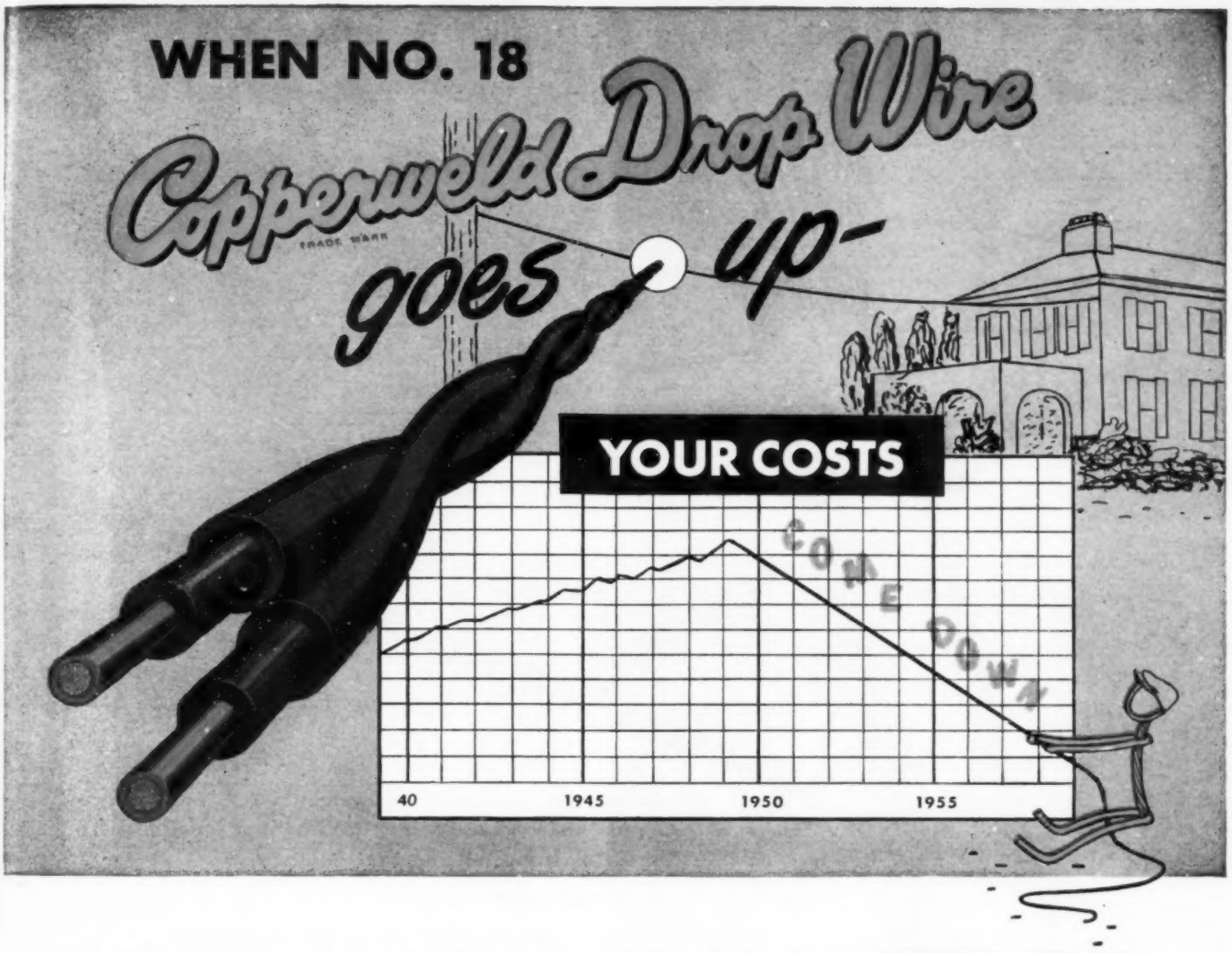
Calculagraph printed elapsed time records are accurate to the second. These precise printed records assure collection of all the revenue due every toll call. Automatically computed, they relieve switchboard personnel of time-consuming detail work that slows switchboard service. Calculagraph is the engineered, revenue-vital equipment that no exchange—large or small—can afford to overlook. Available for switchboard or portable mounting, they are fully described in four illustrated catalogs. Write for yours, now, on company letterhead.

COMPLETELY ACCURATE TO THE SECOND
AUTOMATICALLY COMPUTES ELAPSED TIME
PRINTS THE RECORD FOR PERMANENT FILING
FACILITATES SWITCHBOARD SERVICE
OPERATES SILENTLY

CALCULAGRAPH COMPANY · INC

HARRISON • NEW JERSEY

THE STANDARD FOR ACCURACY SINCE 1892



You save money all along the line when you install No. 18 Copperweld* Drop Wire. Why? Simply because its initial cost is lower than No. 17 drop wire of other types. And yet, No. 18 Copperweld Drop Wire provides the same breaking strength.

In addition, maintenance costs are reduced. That's because of Copperweld's durability, greater mechanical safety, and longer service life. The original high-strength of the alloy steel core in each of the wires is permanently protected by the thick copper covering—and the two metals are inseparably welded by our Molten-Welding Process.

Yes, for rugged stamina, for better conductivity—and for all-around economy—you'll find it pays to use No. 18 Copperweld Drop Wire. It's available with all types of insulation—in twisted pair and parallel constructions.

COPPERWELD STEEL COMPANY
GLASSPORT, PA.
Sales Offices in Principal Cities

NO. 18
Copperweld
DROP WIRE
is the Standard Drop Wire of the World's Leading Telephone Systems—and has been for many years.

*Trade Mark

Copperweld Drop Wire
TRADE MARK

SOLD BY LEADING DISTRIBUTORS

LESS INSTALLED COST

Because there is so much less weight to suspend "overhead", Ansonia Ankoseal all-plastic cable cuts your aerial installation cost of "overhead" all along the line.

Just consider these few—

You can use lighter messenger material—which of course will cost you less.

You can have longer spans—which will mean fewer poles to buy—fewer to install or replace.

You will experience less sagging between poles—which will mean longer periods of uninterrupted service.

You will get more production per man-hour or per gang-hour because this lighter cable is just so much easier to handle.

Any *one* of these benefits should make you stop to figure. All of them together point to a considerable saving you can gain through using modern Ansonia Ankoseal Cable—product of the new plastic age. Write us about your anticipated requirements.

THE ANSONIA ELECTRICAL COMPANY

SUBSIDIARY OF NOMA ELECTRIC CORPORATION

ANSONIA, CONNECTICUT

NEWSLETTER

TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

November 15, 1949

Dear Sir:

First general statement from Rural Electrification Administration on its farm telephone loan policy since signing of Poage-Hill rural telephone act by President Truman was issued by REA Administrator Claude R. Wickard Nov. 4. Mr. Wickard declared "We expect to handle the new program under the same general organizational framework as that under which the Rural Electrification Act is being administered."

Mr. Wickard added that "It will, of course, be necessary to recruit additional personnel qualified in rural telephony." It is understood that appointments of key personnel in rural telephone program will possibly be made in the week of Nov. 14. REA has for remainder of the current fiscal year, which ends June 30, 1950, $215,000 for administrative expenses & salaries, as well as $35,000 which goes to Department of Agriculture Solicitor's Office for legal work entailed in new telephone loan program. It was thought likely that REA might draft for some key posts former commissioners & high technical officials who have been with state regulatory commissions on telephone matters.

REA Administrator Wickard reported that "it will be several weeks before the agency is ready to act on loan applications because of the necessity of organizing the staff for the telephone loan program and of working out policies and procedures required to carry out the purposes of the new legislation." Mr. Wickard also pointed out that prospective applicants should not engage services of paid agents or brokers to help obtain loans. "REA has at no time permitted any part of its loan funds to be used for the payment of broker's or agent's fees, and this policy will be continued," he declared. Remainder of his statement & REA summary was devoted to exposition of act as passed by Congress.

* * *

New type of leased telephone facility has been inaugurated between Michigan school & homes of 10 shut-in students, Michigan Bell has announced. System, with improved sensitivity, literally brings classroom into homes of 10 crippled children, Michigan Bell pointed out.

* * *

Interesting venture in cooperative enterprise between telephone company and rural subscribers for community betterment shines out in Fork Township, Ind., where Tampico Tel. Co. formed by subscriber-stockholders,

will operate system with full service through agreement with Indiana Tel. Corp. 11 lines, serving 104 farm homes, were built by subscribers. Subscribers purchased their own telephones. Lines constructed in area years ago were rebuilt.

Formation of new company was due largely to vision of August H. Mitschke, Seymour, Ind., & cooperation of E. S. Welch, operating vice-pres., Indiana Tel. Corp. Mr. Welch offered technical advice needed & helped in other ways to get lines completed.

* * *

District Judge James W. Morris of U.S. Court for District of Columbia, ruled Oct. 24 that Washington, D. C. Public Utilities Commission should revise its present regulation on removal of telephones used for alleged illegal purpose to require "fair hearing" & "competent evidence" on telephone subscribers' use of facilities. Judge Morris termed present language of commission's regulation that telephone company will notify suspected subscriber of his right to hearing as "vague & uncertain". He also held that mere notice to telephone company from law enforcement agency of telephone being allegedly used illegally was "insufficient proof". Views of Judge Morris, unless they are appealed & reversed, were regarded as significant for any future contests against similar telephone companies' tariff provisions on removal of telephones.

* * *

Highlights: Northern Tel. Co. cutover Creighton, Neb. exchange to common battery operation . . . R. A. Maybury resigned from Lexington (Ky.) Tel. Co. . . . R. E. Dutcher purchased Pierce (Neb.) Tel. Co. from D. M. Davis . . . Roger Paine & George Fawcett purchased Ree Heights (S.D.) Telephone Exchange . . . L. F. Seawell, dist. mgr., Southern Continental Tel. Co., Elizabethtown, Ky., resigned; joined Florida Tel. Corp. as dist. mgr. . . . Bangor (Ia.) Cooperative Tel. Assn. filed notice of dissolution.

Kaplan (La.) Tel. Co. announces plans to convert Kaplan exchange to automatic operation . . . Bad River Tel. Assn. organized to serve subscribers between Pierre & Wendte, S.D.; Carl Fisher, is sec.-treas . . . George A. Mortenson named mgr., Calumet, Ia., exchange of West Iowa Tel. Co. . . . Evarts Co-op Tel. Co. organized at Glenham, S. D. . . . Joe Kessel elected pres., Brighton (Ia.) Mutual Tel. Co. . . . Dr. & Mrs. C. L. Jones, Athens, Ohio, celebrated their 50th wedding anniversary, Oct. 27 . . . Central Tel. Co. converting Farmington, Minn. to automatic service.

New Ulm (Minn.) Rural Tel. Co. anounced installation of $30,000 automatic exchange at Courtland, Minn., would be completed by Jan. 1, 1950. . . . Jackson-Silver Tel. Co., Woonsocket, S.D., will install new rural lines through portions of Jackson, Silver Creek, Floyd, Oneida & Woonsocket townships. Marion E. Whitney is pres. . . . Southwestern Associated Tel. Co. converted Texhoma, Okla., to automatic operation . . . John H. McHenry, sec., Capitol City Tel. Co., Jefferson City, Mo., announced cutover of Jefferson City exchange is scheduled for latter part of 1950.

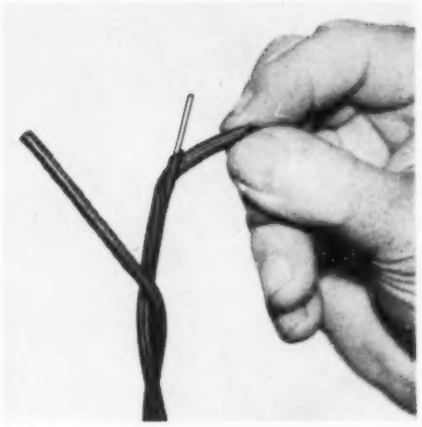
Ray W. Smith, Editor

Take Your Pick PARAGON OFFERS FOUR BETTER DROP WIRES

Whatever your preference—whatever your need—in **Drop Wire** you can now get just the right one from Paragon. Four types of conductors, each available in either of two types of insulation give fullest measure of selection.

Paraprene Insulation—A specially treated rubber with great elasticity combined with unequalled adhesion to Conductor. Encased in a seamless sheath of Paraprene which, resistant to heat, cold, salt or alkali winds, retains its great flexibility and long life. Easy working. And tough—unbelievably tough.

Rubber & Braid Insulation—Same specially treated rubber—encased in a heavy braid of long fiber cotton and mineral fiber, impregnated with stearine pitch and powdered mica—making it weather resistant under most trying conditions.



PARAGON H-T (High Tensile) BRONZE—17 B & S ga.
An outstanding drop wire of great strength. Tested to a rating of 90,300 P.S.I. Very popular because of its strength and flexibility.

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The old popular iron conductor—embodying strength, conductivity and economy.

All these drop wires available in parallel or twisted pair.

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Large Production enables us to quote prices that compare most favorably with drop wire of lesser quality. Ask for prices giving specifications.

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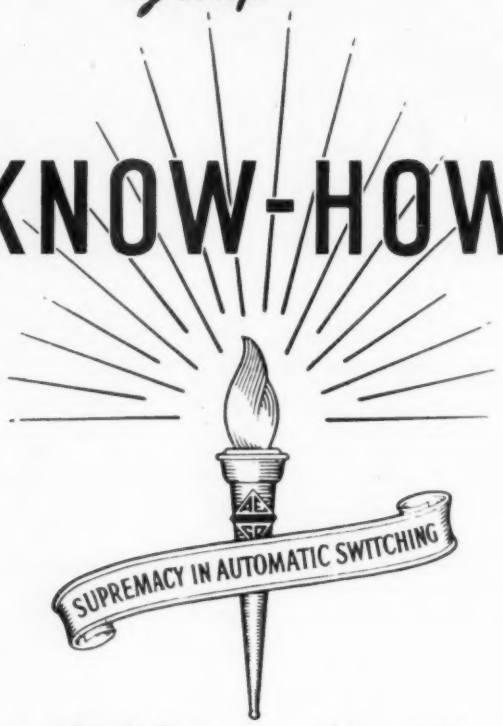

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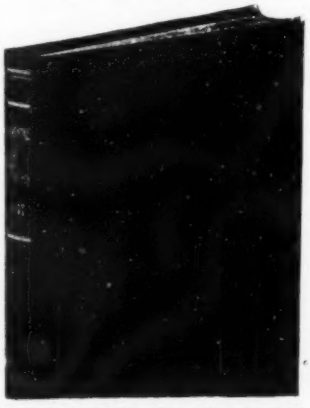
BUCKEYE TELEPHONE and SUPPLY CO.
COLUMBUS 6, OHIO

A Simple, Up-to-the-minute Guide to Telephone Fundamentals

to give you the groundwork you need for best results in practical work.



This telephone book tells how modern telephone systems operate, giving the electrical theory and the technical information on equipment and circuits that will be most helpful as a foundation for the non-engineering worker in telephone installing, servicing, etc.

FUNDAMENTALS OF TELEPHONY

By ARTHUR L. ALBERT

374 pages, 5½ x 8½, 200 illustrations, $3.75

This book provides the telephone worker with an understandable treatment of the technical aspects of his work, valuable as a key to better results and improved skill in any job he may undertake. The fundamentals of electricity and acoustics are covered, followed by a full elementary treatment of telephone equipment and circuits, their elements, characteristics, functions, etc., illustrated by many numerical examples.

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In addition to the savings in poles, Amertel effects great savings in accessory materials, in labor, and in installation and maintenance time. Amertel is long-lasting, too. It is hot-dip galvanized for maximum protection against corrosion. It has great resistance to vibration stresses . . . will stand up under heavy wind and ice loads.

Write for complete information on Amertel Wire and on our regular grades "B.B.," "E.B.B." and "Steel".

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It is your assurance of highest quality wire.

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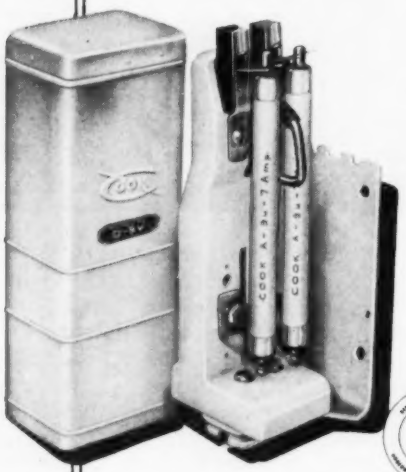
We are grateful for the wholehearted cooperation we have received from the independent telephone industry which has supported us in the development of unfailing protective equipment now in use throughout the world. As evidence of this cooperation we are pleased to announce a further improvement in ....



The O-9u Sub-Station Protector which is now equipped with Underwriters' Laboratory approved A-9u Lavite Fuses.

The rugged RO-9u Sub-Station Protector is also equipped with Underwriters' approved A-9u Lavite Fuses.

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ON OUR *Party Line*

Scratching Posts For Stags

SCOTCH LINEMEN in the remote highlands have reported that many telephone poles must be replaced because they have been worn thin through constant use by stags as scratching posts.

The Post Office Department, which operates the British telephone system, came up with a plan to install a series of separate posts for scratching purposes alone, but can't figure out a way to let the stags in on the deal.

Another Company Heard From?

THE PACIFIC TEL. MAGAZINE reports the case of the service representative who answered a recent call to hear a woman ask impatiently, "*Is this the Olive Street Telephone Company?*" To avoid confusion, the representative stayed with the tradition that the customer is always right, and replied that it was. With new spirit, the caller continued, "*Have you got any facilities? I just talked to the Vernon Street Telephone Company and they said they just run out and ain't got no more facilities.*" Nonplussed for a brief moment, the service representative recovered to clarify the facility situation of these "various" telephone companies for the determined telephone seeker.

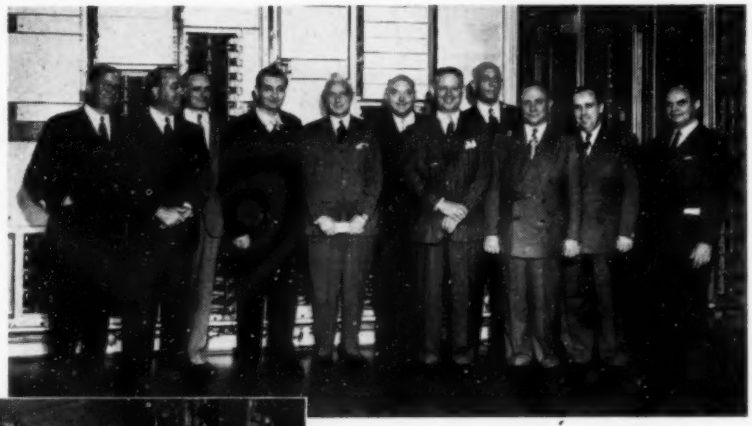
Clear As A Crystal

SEALED IN glass tubes, crystals are precise and reliable performers in the telephone system. Each is a crystal gate to a voiceway, separating each conversation from the hundreds of others which may be using a pair of coaxial conductors at the same time.

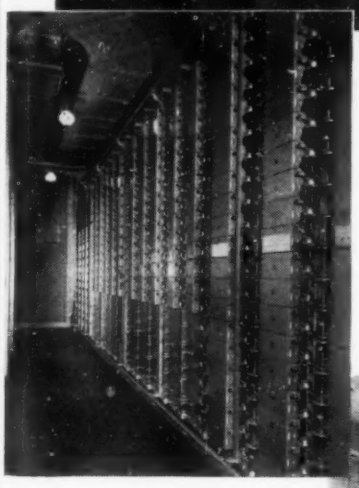
A wire is soldered to a crystal by depositing a spot of paste containing silver on the crystal and bonding it by oven heat. The crystal is then vapor-plated with a thin layer of silver. Then a fine wire is soldered to the spot by a concentrated blast of hot air. The result is a rugged electrical connection to the surface of the crystal which does not interfere with its vibrations.

Elkhart CONVERTS FROM MANUAL TO FEDERAL "ROTARY-DIAL"

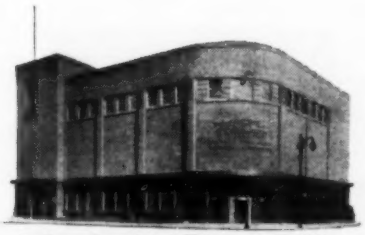
...ENTIRE NETWORK CUT OVER TO 8,600 LINES AND 17,000 TERMINALS OF FEDERAL'S 7A-2 AUTOMATIC SYSTEM



At the cutover: l. to r.—G. Herbert Semler, Director, General Telephone Corp.; Donald C. Power, Counsel, General Telephone Corp.; Harold V. Bozell, President, General Telephone Corp.; Paul Malmgren, Chief Switchman, Indiana Associated Telephone Corp.; Gen. William H. Harrison, President, International Telephone and Telegraph Corp.; Edwin M. Blakeslee, President, Associated Telephone Co. Ltd.; F. E. Norris, Vice President, General Telephone Service Corp.; Robert A. Gantt, Vice President, International Telephone and Telegraph Corp.; Burton W. Saunders, President, Illinois Commercial Telephone Corp.; J. G. Walker, Equipment Engineer, Indiana Associated Telephone Corp.; L. J. Denney, Director, Telephone Division, Federal Telephone and Radio Corp.



A section of Rotary Switch Bays and line of Toll Boards at Elkhart.



Indiana Associated Telephone Building, Elkhart, Ind.

2nd city in the United States to make available to its subscribers the advanced facilities provided by ROTARY DIAL SWITCHING

CLIMAXING more than half a century of growth—from 50 subscribers in 1895—Indiana Associated Telephone Corporation, subsidiary of General Telephone Corporation, on October 7, 1949 converted its nearly 16,000 Elkhart stations from manual to Federal 7A-2 Rotary Dial operation.

Elkhart's new telephone system—engineered to meet the city's special requirements—is one of the most efficient and up-to-date automatic systems of its type in service anywhere in the world.

Elkhart's "Rotary-Dial"—housed in a completely new and strikingly modern three-story central office building—is an important step forward... for the City of Elkhart... for the entire Independent Telephone Industry.

Other leading cities soon to be converted to Federal's Rotary System include Lexington, Ky., Tallahassee, Fla., and La Crosse, Wisc.

Federal offers attractive delivery dates on its complete line of automatic switching equipment—both Rotary and Step-by-Step—for any size exchange. For details, write to Telephone Sales Department.

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The RECTICHARGER*

- Completely automatic self-regulating battery charger with no moving parts.
- Automatically follows the load.
- Maintains constant ($\pm 1\%$) D.C. voltage output recommended for most efficient operation of equipment.
- Compensates for wide ($\pm 15\%$) changes in input voltage.
- Prolongs battery life by preventing over and under charging.
- Self-protecting on overloads.

Without Batteries

The RECTIFILTER*

- The most economical way to provide stabilized D.C. voltage for small common battery manual and machine switching exchanges.
- Eliminates batteries and the expense of frequent inspection and service.
- Entirely automatic—no moving parts.
- Releases wires carrying charging current for revenue-producing service.
- Available in a wide range of sizes with provision, where necessary, for switching to an emergency D.C. source.

* Reg. U. S. Patent Office

Your regular supplier of telephone equipment has models available to suit your needs and conditions. Call him today for complete information.

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1 Joints made with these sleeves are constant in low resistance. They are gastight . . . Corrosive gases and moisture cannot penetrate.

2 Sharp particles of carborundum —the hardest material economically available—insure a thorough interlock between the wire and tube.

Write for new Bulletin SS

Reliable SQUEEZ SLEEVES

Reliable has been manufacturing sleeves for over 40 years, and for the past dozen years has been supplying compression splicing sleeves to railroad communication departments, the Western Union Telegraph Company and a few independent telephone companies. There are many millions of sleeves in the field using the patented method of holding employed by Reliable. They have a long record of perfect service under all conditions. Now these sleeves are available in a greater range of sizes for communication circuits as Reliable Squeez Sleeves. They are designed for use in common sizes of compression tool die grooves.

Reliable Compression Joint Tools are available for use with these sleeves.

Reliable ELECTRIC COMPANY

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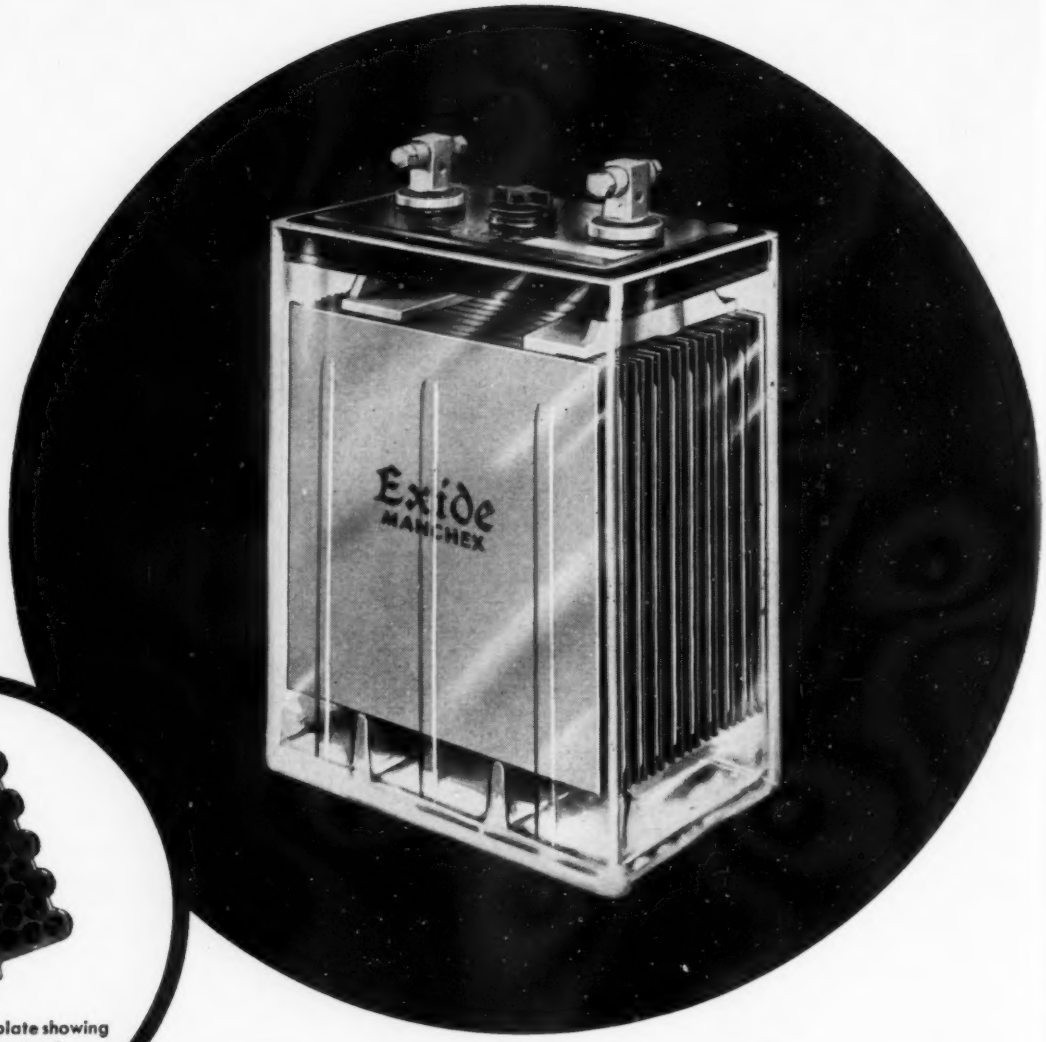
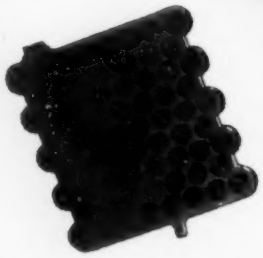
OVER 40 YEARS' *Service* TO THE TELEPHONE INDUSTRY





Exide-Manchex positive plate showing unique lead button construction.

The New EXIDE-MANCHEX Battery

For dependability and economy in TELEPHONE SERVICE

You can always count on Exide-Manchex Batteries for dependable, day-in, day-out performance in telephone applications. They provide improved electrical characteristics, deliver increased power (watt) output per unit of space, and assure long battery life with low cost maintenance.

The many fine qualities of Exide-Manchex Batteries are due chiefly to the manchester positive plate with its unique lead button construction. The buttons, rolled strips of corrugated lead, are pressed into holes of the lead antimony grid. Forming action expands the buttons and locks them securely in place. Only a comparatively small portion of the total lead in the buttons is formed initially into active material; the remainder is available for gradual conversion in service.

Use Exide-Manchex Batteries for all stationary battery requirements—common battery, emergency reserve, signaling, PBX and other applications. Their use is assurance of dependability and economy.

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THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

EDITORIAL

"We, the People of the United States . . ."

IN THIS ISSUE we are publishing (Pages 29, 30) an article by Mr. E. C. Blomeyer entitled "*A Citizen Checks Up On Democracy.*" How that article came to be published here is set out in the "Statement By The Editor" preceding it.

That article and this editorial are not specifically about the telephone business. They are about some things more important, even to telephone people, than the telephone business.

Many citizens of the United States (including, we are sure, many telephone people, rank and file as well as management) fear that the present trend of government in this country is toward socialism and what is known as the Welfare State. This latter is, as we understand it, a situation under which those who work have to support all those who do not work.

These citizens believe—and we think the evidence supports their belief—that the United States of America has become a great nation because it has been a country of free enterprise, rewarding individual initiative and providing incentive for the individual. For that reason they fear and oppose government ownership of industry and the bureaucratic regimentation of the people that would go with it.

Although we state without equivocation that we are for free enterprise and opposed to socialism and regimentation, it is not our purpose to discuss here the pros and cons of that question. Millions of words have been and are being spoken and written on that subject. Any citizen who wishes to do so can be fully conversant with it.

The purpose of this editorial is to point out this: The constitutional control of the people of the United States over their government is so great that there can be no fundamental changes in our present system if a majority of the people—or perhaps even a substantial minority—are opposed to it, *provided they do something about it.*

One of the rights of the individual citizen, under our democratic system, is the right to tell anybody in government, high or low—President, Congressman or anybody else—just what he thinks government should or should not do.

Another and priceless right of the qualified electorate is the right to vote.

But many of us are too busy with our own affairs to do anything at all about our governmental affairs; even to do so simple a thing as writing a letter to our congressman. And many of us are too busy or too indifferent to even go to the polls on election day.

That is why organized minorities and pressure groups, alert, active and aggressive, can usually get what they want—because so many of us let our constitutional control over our government go by default.

Members of Congress are highly sensitive to public opinion. They have to be so in order to hold their jobs beyond one term. They want to know what we, the people, think about the things Congress is doing or is called upon to do. They can only guess at what we think—unless we tell them.

We, the people, cannot maintain our constitutional control over government unless we exercise it.

"This conclusion is inescapeable: In the preservation of our American way of life, our free enterprise and our democracy, we, the people of the United States, have no one to fear but ourselves."

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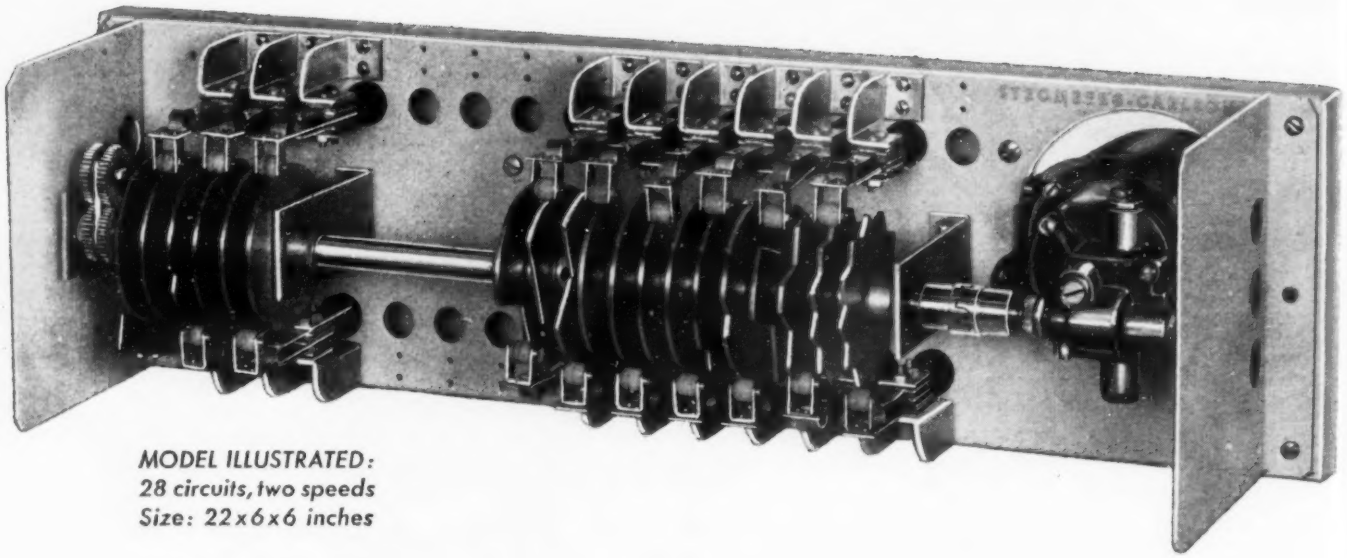
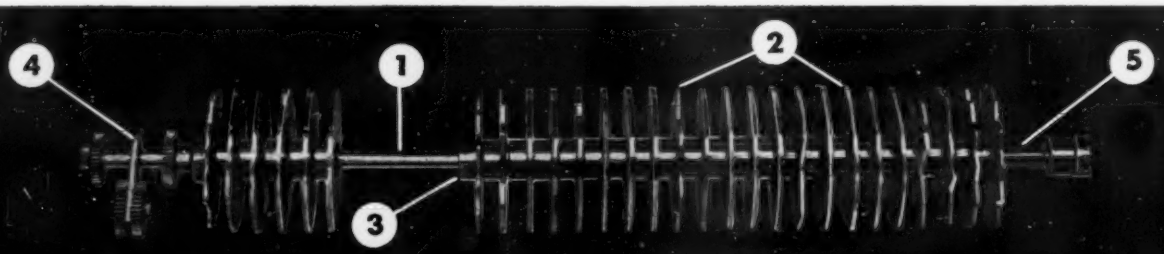
THE NEW STROMBERG



MODEL ILLUSTRATED:
28 circuits, two speeds
Size: 22x6x6 inches



FEATURES OF THE SHAFT, CAMS, AND GEARS

1 The main shaft is of case-hardened steel, chromium-plated. Set screws can be tightened again and again without danger of slipping or damage to the shaft.

2 Cams are also of case-hardened steel, chromium-plated and polished, and custom-cut to provide specific intervals for each interruption, from 120 I.P.M. to 2-minute cycles.

3 Cams and cam hubs are copper-brazed for absolute permanence.

4 Planetary gears allow TWO speeds on the SAME shaft. The bell crank on the gears is copper-brazed to the shaft. Life tests on these gears were run for 9 months on a 50-to-1 speed ratio (equalling 37½ years' service!) with intermittent lubrication; wear was negligible.

5 The main shaft contains an automatic torque limiter—a "mechanical fuse." Should any foreign object be caught in the machine and jam it, torque is automatically reduced so close to zero that the motor can continue to run for hours undamaged.

FUNCTIONS OF THE INTERRUPTER

- **Provides a direct interruption of ringing current or DC pulses to operate ringing relays**
- **Provides a flashing Busy for toll**
- **Provides timing pulses accurate within 10 milliseconds**
- **Provides make-break contacts**
- **Provides interrupted pulses for Busy and Dial tones**

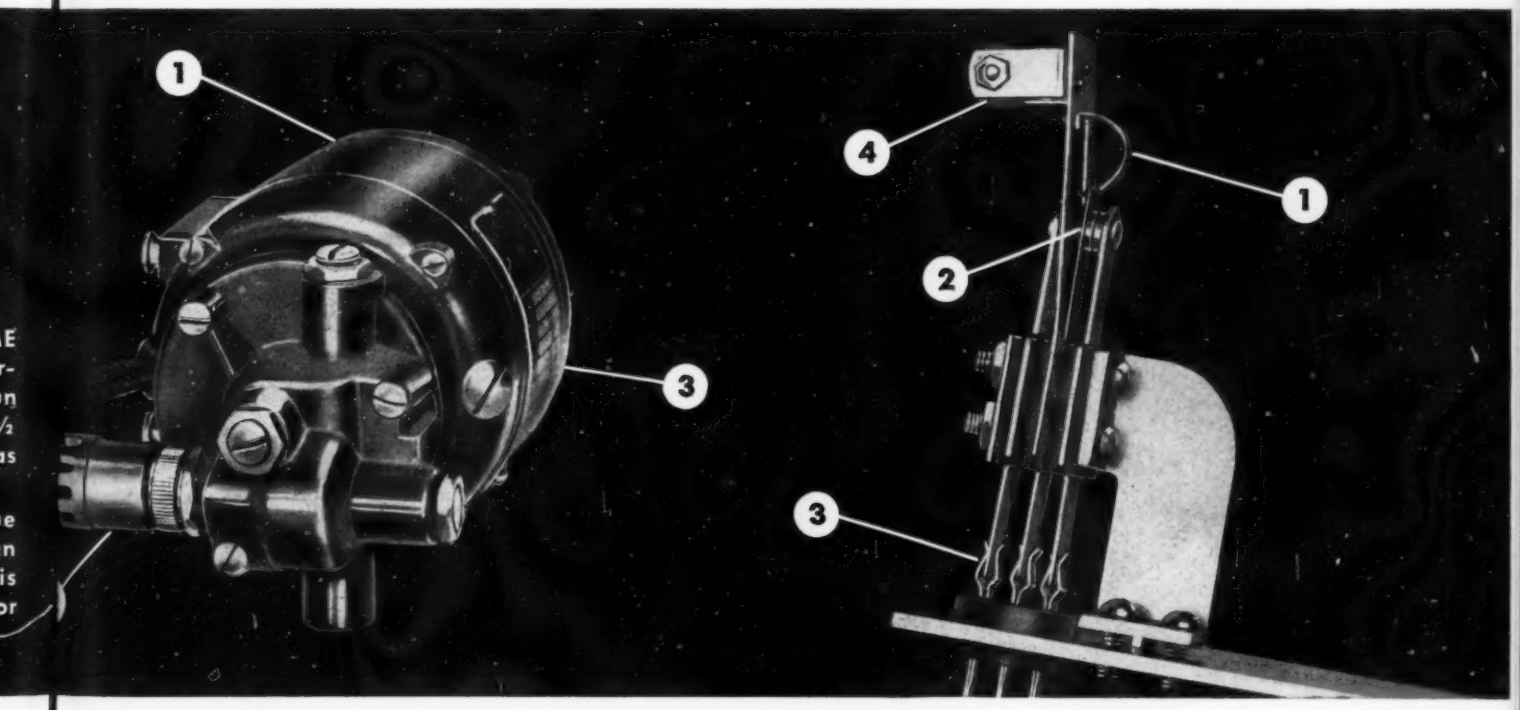
Because the interrupter can provide almost *any type* of timing pulse, *regular* or *irregular,* it obviously can be applied to dozens of purposes other than those of telephony. We invite inquiries from laboratories, engineering staffs and industry—wherever automatic, accurate, service-free timing is required.

STROMBERG-CARLSON Factory, General Offices: Rochester 3, N. Y. • Branch Offices: At Chicag

...CARLSON INTERRUPTER..

Is Chock-Full of New Design Features Which Eliminate Old Industry Headaches

The fact that Stromberg-Carlson had never before manufactured an interrupter machine actually made the job easier! Our Engineering staff simply analyzed the common faults of timing machines already on the market —and asked operating company men "what should a new interrupter have that present machines don't have?"—and then spent one year finding ways to supply all the answers in one modestly-priced piece of equipment. The finished product embodies many designs and methods long accepted in mechanics but never before applied to an interrupter.



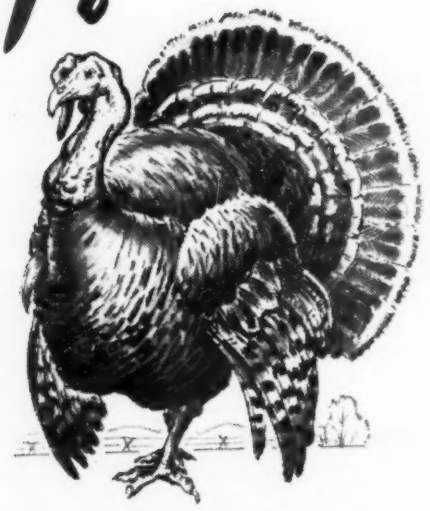
FEATURES OF THE MOTOR

1. The interrupter is provided with a standard speed-reducer motor, with built-in reduction gearing.
2. The gearing of the motor and the interrupter shaft and the mounting of the motor are such that the motor can be removed and replaced in a few seconds—by loosening a coupling, disconnecting a twist lock plug and lifting out the motor. For many installations, a standby interrupter may not be necessary.
3. Motor supplied in three types: for 110-volt A.C., 24-volt D.C. or 48-volt D.C.

FEATURES OF THE SWITCH

1. Snap action, requiring no relay to open or close a circuit. In life tests, it has performed more than ONE BILLION operations without failure.
2. Contact points are self-cleaning. The contact make or break can be tuned within 50 milliseconds.
3. Replaceable in split seconds, without stopping the unit and without soldering.
4. The roller is Nylon and runs on a highly-polished sleeve-bearing of almost limitless life.

Let's talk turkey!



IF YOU HAVE TROUBLE BORING IN FROZEN EARTH, HARD PACKS, CLAY, GUMBO, OR SHALE --- *USE*

*The Alaska Frost Earth Auger**

AND AVOID COSTLY SLOWDOWNS AND SHUT-DOWNS CAUSED BY BROKEN MACHINES OR HARD DIGGING—MAKE YOUR GOOD DIGGER BETTER

IT'S SMOOTH - FAST - EFFICIENT and ECONOMICAL

USE The Alaska Frost Earth Auger* and OPERATE 12 MONTHS of the year

Entirely New Principle

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FREE TRIAL ON YOUR OWN MACHINE WILL CONVINCE YOU

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A Citizen Checks Up On Democracy

by

E. C. Blomeyer

STATEMENT BY THE EDITOR:—*The following article was not written for publication. It's appearance here came about this way: Some months ago several business men were discussing the subject of free enterprise. One of them, Mr. E. C. Blomeyer, recalled that, about a year previously, he had made a study of this and kindred subjects, and had written a memorandum on them—not for publication, but simply for his own education. At our own request Mr. Blomeyer later gave us a copy of the memorandum. When we read it we thought—as did several others who also read it—that it should be published, so that others would also have a chance to read it. So here it is.*

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THE EDITOR

• • •

WE AMERICANS talk a lot about our democracy and our rights and freedoms, and about what we call our American way of life. All of such conversations that I hear consist mostly of generalities. Nowhere have I heard or seen a concise explanation of just what it is that creates and maintains our democracy and our American way of life. So I decided to find out for myself.

In such an inquiry you naturally turn first to the Constitution of the United States. You find this document to be in essence an agreement between certain parties. By it those parties formed themselves into a union called the United States of America, established a form of government for that union, and fixed the duties, procedures and powers of that government.

Who are the parties to this agreement? The Constitution answers that in its first paragraph. It says: "We, the people of the United States .... do ordain and establish this Constitution for the United States of America."

We, the people! We are the parties to our Constitution. This great document is not a grant of privileges handed down by a ruling power to a subject people. It is not an agreement between states, nor is it even one between a people and their goverment. It is an agreement made by and between a free people, banding themselves together in a national

union and creating for themselves an agency—our national government—to handle their govermental affairs for them. And, in creating this agency, the people took great care to so limit its powers that it could not, without their consent, deprive them of rights and liberties they wished to retain for themselves.

Study the history of the making of the Constitution and you find it no mere figure of speech to say that the people made it. The framers of the Constitution represented, not their respective states, but the people of those states. The Constitution was ratified, not by the states, but by conventions of the people of the states.

Throughout the Constitution there is evidence of the lengths to which its makers went to safeguard the life, liberty and property of the individual. No other Constitution, of any other government, goes so far in asserting and protecting the rights of the people. The men who framed our Constitution knew how the freedom and dignity of peoples had been trampled by rulers in other lands. They were determined to have none of that here.

So zealous were the representatives of the people in guarding the rights of the people that, within the short time of two years after ratification of the original Constitution, there were adopted—upon the insistence of some of the ratifying conventions—ten amendments to it specifically enumerating individual rights. These amendments to some extent duplicated provisions expressed or implied in the original Constitution, but the representatives of the people wanted no misunderstandings about these things.

These amendments constitute what we call the Bill of Rights. They guarantee the fundamental freedoms of speech, of religion, of the press and of assembly. They prohibit search and seizure without warrant and the taking of life, liberty or property without due process of law. They assure to the individual other and important rights, and reserve to the people all rights not specifically granted in the Constitution to government.

Truly our Constitution is a mighty bulwark of our democracy. But it is, after all, only a vehicle. Something more was needed to create, and is needed to maintain, our democracy.

To illustrate—there are, I figure four essentials of democracy:

There must be freedom of individual opinion.

There must be a free and secret ballot by which that opinion can be officially expressed on public matters.

There must be conduct of public affairs in accordance with the majority of that will so expressed, and

There must be peaceable acceptance of that majority will by the minority.

Without that last requisite there can be no democracy, since it is fundamental to democracy that, when all have spoken who want and have right to speak, majority decision prevails.

I think, therefore, that we have democracy not only because we have a Constitution providing political and legal processes by which we can function democratically, but also because we have a citizenship accustomed and willing to act democratically by peaceably accepting the results of the democratic process.

Of course our democracy does not function perfectly. It probably never will, we humans being what we are. So long as we, the people—by the neglect of many of us to vote, or by our other inattention to or unwillingness to participate in our public affairs—allow organized minorities and pressure groups to unduly influence either government or citizens, or we fail in other ways to actually exercise the overwhelming control given us by our Constitution, we must expect imperfections in the functioning of our democracy. Such imperfections are not the fault of our democratic system. They are our fault, because these things cannot take place unless we, the people, allow them to take place.

So much for these aspects of our democracy. But what does our democratic system have to do with our American way of life? And what *is* our American way of life?

E. C. BLOMEYER, Chicago, Ill., author of "A Citizen Checks Up on Democracy."

As to the latter, I think a fair definition is that it is a system which allows the individual to do, to the best of his own ability, what he wants to do vocationally or otherwise, so long as he does not trangress the law or infringe the rights of others.

As to the former, it is quite evident that democracy alone would not produce our American way of life. Certain other countries of the world have democracy in varying degrees, yet their people do not enjoy and have never enjoyed the material prosperity and high standard of living, together with the individual freedom, of the people of the United States.

When you look for the reason you find a significant difference between such countries and our own. They do not have, to the full extent that we do, the system of free enterprise.

There seems to be no reasonable doubt that what we call our American way of life is the result of the combination of our democracy and our system of free enterprise. It is well, therefore, to remember that the democratic system can be used, in a wholly democratic way, to stifle or even destroy free enterprise.

A conspicuous example of this process is now taking place in Great Britain. There the present government is engaged in the socialization of important industries. Since this government campaigned on the platform of government ownership of basic industries, and was elected by a majority of votes, the democratic system is being utilized, in a democratic way, to change the way of life of a people.

This proposition of free enterprise is not of moment only to large industry. Its existence is equally important to the individual who wishes to engage in his own business. The self-employed individual is an integral and valuable part of our system of free enterprise.

There can be no advance proof that government ownership and operation in the United States of such basic industries as transportation, communications, coal, oil, steel, banking and so on would stabilize our national economy. The evidence, in fact, is quite the other way. As yet, no nation appears to have succeeded in increasing its productivity or improving the living conditions of its people, through socialization. When a level of a national economy is maintained through socialization, it is a low level rather than a high one.

The only thing that can be certain

(*Please turn to page* 46)

As telephone industry continues its huge expansion projects, money requirements remain at top of list of problems.

The Markets For New Capital

By A. W. Kimber
Financial Consultant,
Washington, D. C.

EVERYBODY knows the difference between the methods used in selling large issues of bonds or stocks, and those used for the smaller issues and by small companies. The big offerings must have wide-spread distribution; they need the services of underwriters, bankers and brokers; although some of them have been placed directly with stockholders and subscribers of the company itself, notably in the May-June placing of $394 million of American Telephone & Telegraph convertible debentures. The small company usually employs this direct method, and for stocks often does as well as the large one, so far as cost of money is concerned, measuring this cost by the dividend yield percentage; this is emphasized when the small company and its management are well regarded by its customers and stockholders.

But not everybody knows why security prices move as they do, why new bonds and stocks at one time can be sold at prices higher than a few months before, or have to be sold for less. In this respect the big transactions are important for the small companies, almost regardless of the amount or type of securities which they undertake to place. The results achieved by the big companies, especially when considered from time to time and as indicating trends, should serve as something of a guide to the smaller company in arranging the price and other terms and conditions of its new offerings.

Trends in securities market conditions and prices during the past several months have been highly significant, when the results of new offerings are compared with those of earlier months of this year, and especially with those of corresponding months last year. The climate and weather of the markets lately have been fair, and with favorable outlook.

Supply and Demand

THE first major development was the shrinkage in supply of new securities during the third quarter of the current year.

Offerings of securities of all kinds were scant during the three months July-September 1949, as compared either with the two preceding quarters or with the corresponding quarter of 1948 or 1947. These are the figures:

Corporate Security Issues
(All kinds, in $ millions)

Period	1949	1948	1947
1st quarter	$1,096	$1,638	$1,038
2nd quarter	2,250	1,623	1,738
3rd quarter	727	1,264	1,279

Thus in the third quarter of the

current year there was a sharp drop in the total amount of new capital issues of any kind available for purchase by investors and for placing by underwriters. It should be noted that the big figure for the second quarter this year included the $394 million offering of American Telephone & Telegraph convertible bonds, direct to stockholders with no underwriters. Thus both sides of the trading had less than the normal amount of material to work on. Some investors were in the stronger position, as they were able to wait if offering prices did not suit them; but the underwriters were under pressure to keep their organizations busy. Keen competition developed among them for what business there was; prices advanced and profit margins were reduced. For example, on the Iowa-Illinois Gas & Electric offering in October of $10,000,000 of Aa bonds at 2.70% yield, the winning bid was only $2.44 per $1,000 bond under the reoffering price, a compensation to cover expenses and risk which was less than the New York Stock Exchange commission of $2.50 for riskless brokerage. But all the nine bids were slanted towards the same reoffering yield, reflecting underwriting opinion as to what the market would pay.

But the distribution of the 1949 shrinkage varied as between the different classes of securities. Public utility issues declined proportionately less than the total. This is indicated in Table One. And there has been an improtant divergence from the former drift to debt financing as against equities. In the third quarter this year plus October, total public utility bond offerings amounted to $339,686,000, against $634,775,000 in same period last year; while new offerings of public utility stocks amounted to $289,706,000 this year against $135,647,000 in the 1948 period. And most of the stocks this year were in the telephone and electric utility groups, but only about 60% of the bonds. And the forecast for November offerings carries this trend along, in fact the market value of utility stocks in registration at the end of October was ten times the value of such stocks sold in November 1948.

The big increase in supply indicated for November should in itself make little or no difference in price levels, which are dealt with more in detail below. For several years now, supply has never caught up with demand. Failures of some offerings of bonds and stocks have been due to over-pricing.

Common Stocks

ALL OF THE big offerings of common stock during this period have done well market-wise. One of the most impressive was the $54,200,000 Bank of America capital stock offered in October on a 5.52% dividend yield basis by a nation-wide syndicate; inquiries for more than 90% of the total were received on the first day. Others were the Philadelphia Electric in July, $19,452,000 of common at price to yield 6.00%; the West Penn Electric $11,071,170 common (for cash) in September at price to yield 6.35%; this offering was made direct to company's preferred and common stockholders but had a stand-by guaranty of a syndicate of 164 underwriters, of which 118 were out-of-New York firms. Other important offerings of common stock included: Louisville Gas & Electric $7,593,750 at price to yield 5.93%; Rochester Gas & Electric $25,051,000 to yield 7.86%; American Gas & Electric $22,289,125 to yield 6.70%; Illinois Power $7,547,430 to yield 6.98%. All of these issues were quickly oversubscribed.

Question may be asked, how could a little company like Oregon-Washington Telephone, located in the northwestern corner of the United States and with only a local market for its securities, be able to sell a block of new common stock at price to yield 5.58%, while much larger companies whose securities are traded in the markets of Chicago and New York have had to price their new common stock offerings to give much higher yields. In other words, how could Oregon-Washington obtain its common stock money at so much lower cost.

The answer lies first in the good standing, the good credit, which the company has long maintained with its subscribers and stockholders, and secondly in the good financial record that the company has shown. For 1948 Oregon-Washington showed its fixed charges (income deductions) earned 3.87 times as against 3.48 in 1947, its overall charges and preferred dividend requirements earned 2.79 times against 2.59 in 1947; these ratios compare favorably with those of the big companies. Earnings per share common in 1948 showed at $3.19 against $2.33 the year before, amply covering the $1.20 dividend. But there is another test for safety of the dividend on common stock, a test that cuts through such factors as capitalization balance and others, that is, determination of the margin of safety for dividends in the gross income of the company. Oregon-Washington for 1948 showed gross income (amount available for income deductions and other charges) amounting to $99,500; after interest and preferred dividends there was $63,794 for common dividend requirements of $24,000. Company could stand a reduction of 25% in its gross income and, after due allowance for income taxes, still show more than $48,000 available for common dividends, covering requirements twice. Many of the larger companies could not pass this test so well.

Trading markets in common stocks have lately displayed what speculators call a better tone. During the twelve months July 1948 to June 1949 the stock market showed irregular prices with generally declining trends, accentuated by a sharp dip in May-June of this year. Then prices turned upward, and in late October the averages nearly reached the highest levels of 1948. The picture then looked very much like the February-May 1948 record. But this development is really not the cause of the receptivity shown by the markets for common stocks of new issue, although related to it. The recent price rises in the trading markets have been stimulated more

(*Please turn to page* 50)

Table One—Public Utility New Security Issues

	1949 Electric & Telephone	1949 All Utility	1948 All Utility
Bonds			
July	$ 41,225,000	$ 98,010,364	$183,550,000
August	32,705,000	34,560,000	49,400,000
September	55,500,000	58,150,000	219,500,000
October	80,700,000	148,966,000	182,325,000
In Registration for November	196,660,000	196,660,000	216,250,000
Stocks			
July	$ 53,250,000	$ 67,715,000	$ 568,125
August	43,974,000	49,761,000	46,457,725
September	52,793,000	74,893,000	36,141,700
October	97,337,000	97,337,000	52,479,500
In Registration for November	151,036,000	159,086,000	15,332,000

Note: Bonds taken at principal amount, stocks at offering price. Table includes both public offerings and private sales, but no exchanges, no purchase by parents.

SMALL COMPANY TALK

By
BILL CORMAN

BILL ASKS—"How Small Can A Company Be?" —and outlines minimum requirements for a successful telephone company.

HI, NEIGHBOR! TELEPHONE ENGINEER's Editor, Ray Smith, has left himself—and incidentally also you readers,—wide open, and I certainly intend to take advantage of it. In a recent past issue, Ray jokingly intimated that the only reason I ever got more than a couple of stripes on my sleeve, much less any thing on my shoulder, was that I was in the Air Force. Now, he just might be right, for I was "in" long enough to find out a thing or two for myself, but he has left himself wide open for me to tell all of the armed service stories that I can think of. So you might as well prepare yourself—here comes one.

When I received my nice little letter from the Government in 1941 and was assigned to Eglin Field, Florida, my first immediate commanding officer was a Major—in those days, a really high rank. For lack of billets, another junior officer and I roomed with the Major and his wife, a fine lady. Every morning the Major got up at about five, and from then until time to go over to the field, read the newspaper. After I got to know him better, I asked him one day why it took him so long.

"I read everything in it," he said, "Everything. The stories, the editorials, the columns, even all the copy in the ads."

Since he was a regular army officer, I couldn't imagine what good he thought the copy in an ad for ladies underwear would do him, for instance —in connection with his career, that is. So I asked him.

He grinned. "Well, you never can tell where you will come across some information that will do you some good. The trouble is that people don't know how much they don't know. The mark of an educated man is that he *knows* how much he doesn't know, and that is the first step toward learning."

It was one of those little things that stick in your mind, and I have never forgotten it. The point of this whole thing is that ever since then I have read things much more completely than I did before, which brings me down to this. When I had reached the back of the September issue of FORTNIGHTLY TELEPHONE ENGINEER I came to the classified ads section, and in reading it over, found that there were listed For Sale, no less than 14 small telephone companies. As I was about to turn the page, the thought suddenly came to me: "Who is going to buy those companies?" and then, "Who ought to buy them? Can anyone afford to buy them, even priced as low as some of them seem to be?" What was really in the back of my mind all the time, of course, was "How small can a company be, and continue to exist and furnish proper service?"

Minimum Terms And Requirements

IT HAS appeared to me that sometime in the not too distant future, we must answer that question. This is not to say that we must fix a station mark and then categorically state, "A company smaller than that will fail; one larger than that will succeed." What we have to do, I believe, is fix in our minds some minimum terms or requirements, and then try in some way to meet those terms.

Perhaps, and all of this must be "perhaps" because I am groping for the answer just as much as you are —perhaps one of those requirements must be in terms of the amount of revenue, which ties closely, but not directly, to the station count. For example, in the recent widely published remarks of a New York Commissioner, it was evident that commission had in mind the revenue of the average New York telephone exchange of 300 stations as one of the minimum requirements. The Commissioner most definitely intimated that his commission does not give a New York exchange of less than 300 stations much hope of separate existence.

Personally, I hope he is wrong, for I would hate to see the day come when it is impossible, either because of laws or widely recognized practice, for a man to build or acquire a telephone company of less than 300 stations. 300 stations, even at $50 a sta-

tion, is $15,000. At the cost of today's stations, it would be anywhere from $30,000 to $90,000. For us little fellows, that is a whole lot of money. It would practically preclude a little man from going into the telephone business. And while I may be wrong, I believe that would be bad, not only for the industry, but for our whole economy.

One of the cornerstones of advancement in the United States has been the ability of the little man with a good idea to go into business and put his idea to work for himself and for those around him. Bell himself was a little man when he invented the telephone; practically every one of the major advances in the art up until the last 15 years was made by a little man with a good idea, most of them "Independents". But the trend is gradually in the other direction—more and more it is only the big man who has the money and facilities necessary to develop a good idea. I am *not* sorry they are advancing the art. I *am* sorry that the opportunities open to the little man seem to be diminishing. When opportunity diminishes and security increases, incentive has a queer way of vanishing—and I will always believe that opportunity and incentive are the foundations of advancement. The day may come when we will put social opportunity and social incentive ahead of personal opportunity and incentive, but, except during wars, catastrophies, and such like, human beings do not appear to be made that way. The laws of self-preservation and survival of the fittest are deeply ingrained in human nature; in fact, advancement in nature seems to be much dependent upon them. And American democracy, based on *personal* opportunity, freedom and incentive, has given us the greatest social advances the world has yet seen.

But the revenue of the average 300 station exchange may, under certain conditions, be one of the minimum requirements, or rather, for that is only one group's idea, some figures based on known variables, may be a minimum requirement. There are undoubtedly others also. For example, a certain knowledge of the mechanics of telephony must also be a requirement. If there is sufficient lack of such knowledge, perhaps an extensive education course is indicated, and perhaps our State Associations and Commissions are the medium through which this course can be conducted, with leadership and integration by the FCC and USITA.

Management knowledge is certainly also necessary. Trade magazines can and indeed do, provide much information along this line, but perhaps we need something more basic. If so, let's figure out what and do something about it.

Desk Motto For Congressmen And President Truman

"I place economy among the first and most important virtues, and public debt, as the greatest of dangers to be feared . . . To preserve our independence, we must not let our rulers load us with perpetual debt . . . We must make our choice between economy and liberty or profusion and servitude. . . .

"If we run into such debts, we must be taxed in our meat and drink, in our necessities and our comforts, in our labors and in our amusements . . . If we can prevent the government from wasting the labors of the people, under the pretense of caring for them, they will be happy."—THOMAS JEFFERSON.

The above taken from THE READER'S DIGEST, *October*, 1949 *issue.*

Financing Is A Big Problem

FINANCING is a big problem that we have all been worrying with and talking about for lo these many years. The very fact that we are still talking about it proves pretty definitely that we haven't solved it yet. Some will say that only good management can secure good financing. If they are right, and they may well be, then we are back to management—and doing something to improve it. If they are only partly right, then there may be a *small telephone scheme* of financing that we haven't developed. There is almost every other sort of financing that one can think of: Inventory financing, Accounts Receivable financing, "Terms", "Open Accounts", Mortgages, Debentures, Funded Debt, Closed End and Open End, that big bug-a-boo, Deficit Financing and so on. Maybe there is another that would better suit the small telephone company than any yet thought of, or maybe it has been thought of but hasn't been "sold" to the right people. A good financing program is certainly one of the minimum requirements.

Good records can, as each day passes, be counted as more and more of a definite requirement. I won't press the point here, though I may later. Many have recognized this requirement for a long time, but it appears that our selling methods have not been of the best. Many groups are doing splendid jobs including, to mention only one, the Iowa Small Company Committee, and they should be congratulated and encouraged and emulated.

Maintenance of good relations with the public and with employees are among the minimum requirements. In the small company these need mainly to be recognized as problems, for, once recognized, the job is usually easy. Congenial personal contact is the best type of employee and public relations, and it requires only a smile and a friendly handshake and a genuine interest in the other fellow to have a good program in a small company.

There may be other minimum requirements for a telephone company to succeed that you may think of which I haven't. The main thing is that we recognize that these are requirements. A thousand station company with bad management, bad records and bad public relationship is worse off than a 300 station company with its other minimum requirements in good shape.

So really there is no one answer to our question as to how small can a telephone company be and still furnish good service and expect to exist. There is an answer, but it is different in each case. As time goes on we should develop certain criteria, certain probable minimum requirements, that can be used as a guide. We can develop these not only on an industry wide basis, but each of us, on our own individual basis, can arrive at some good answers.

To return to the New York Commissioner again, there probably are certain sizes of companies that have a better chance of survival, other factors being equal, than other sizes. Each of us should figure out how we fit into this picture as to size. Which gets me back to my starting point of the 14 small companies listed "For Sale". It may be that the ones who should buy these companies are the other Independents nearby, so that, by attaining a certain size, the company will have a better chance of survival. It is a fairly well recognized fact that the really large companies

don't particularly want these little exchanges, and that many of the large companies operate their small exchanges at a loss which must be made up by the other larger exchanges. If the acquisition of these little "For Sale" companies by another little company will help to put the acquiring company in a better position, then are we not killing two birds with one stone? Who is better qualified to run and make a success of a little exchange than a man who has already done just that?

The point, Neighbor, is this. If a nearby small exchange is for sale, you could do worse than to look it over. *Up to a certain point*, but only up to that point, there are some expenses that can be reduced by the consolidation of small exchanges. The person who gets out the bills for one can probably get them out for both just about as easily and with only a little more expense than the one set cost. One man can manage both just about as easily as he managed the one he already had. One set of books can be maintained for both as easily as for one. And so on down the line through several items of cost. You can figure it out for your own particular case, and see where you arrive. But look it over. It may be just the opportunity you need.—THE END.

Cutover Completed At Dalton, Pa.

A. J. Sordoni, president of Commonwealth Telephone Co., Forty Fort, Pa. recently threw the switch marking the completion of a $100,000 switchover from magneto telephones to automatic service in Dalton, Pa.

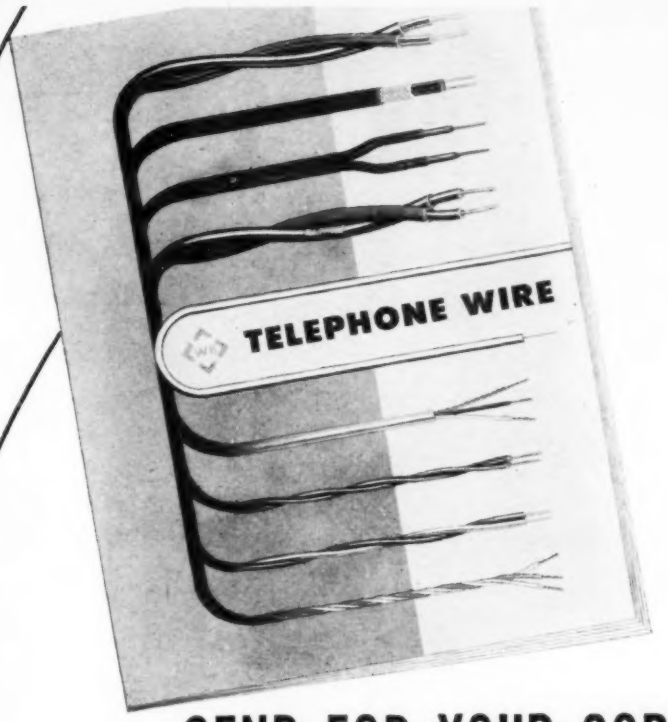
Next switchover, ninth in the area since the first of the year, will be Clarks Summit, in December, and this will cost an additional $500,000.

The automatic conversion program will cost Commonwealth Telephone Co. $3,000,000 by the time it is completed, Harold E. Payne, vice-president and general manager, reported.

Other offices lately converted include Nuangola, Wapwallopen, Huntington Mills, Ringtown, Nuremberg, Laceyville and Wyalusing, Pa.

Milton Veil Buys Ozark, Mo., Company

A transaction was completed recently whereby Milton Veil purchased the Christian County Telephone Co. from J. M. Havin, owner for the past six years. Mr. and Mrs. Veil are from California, Mo.



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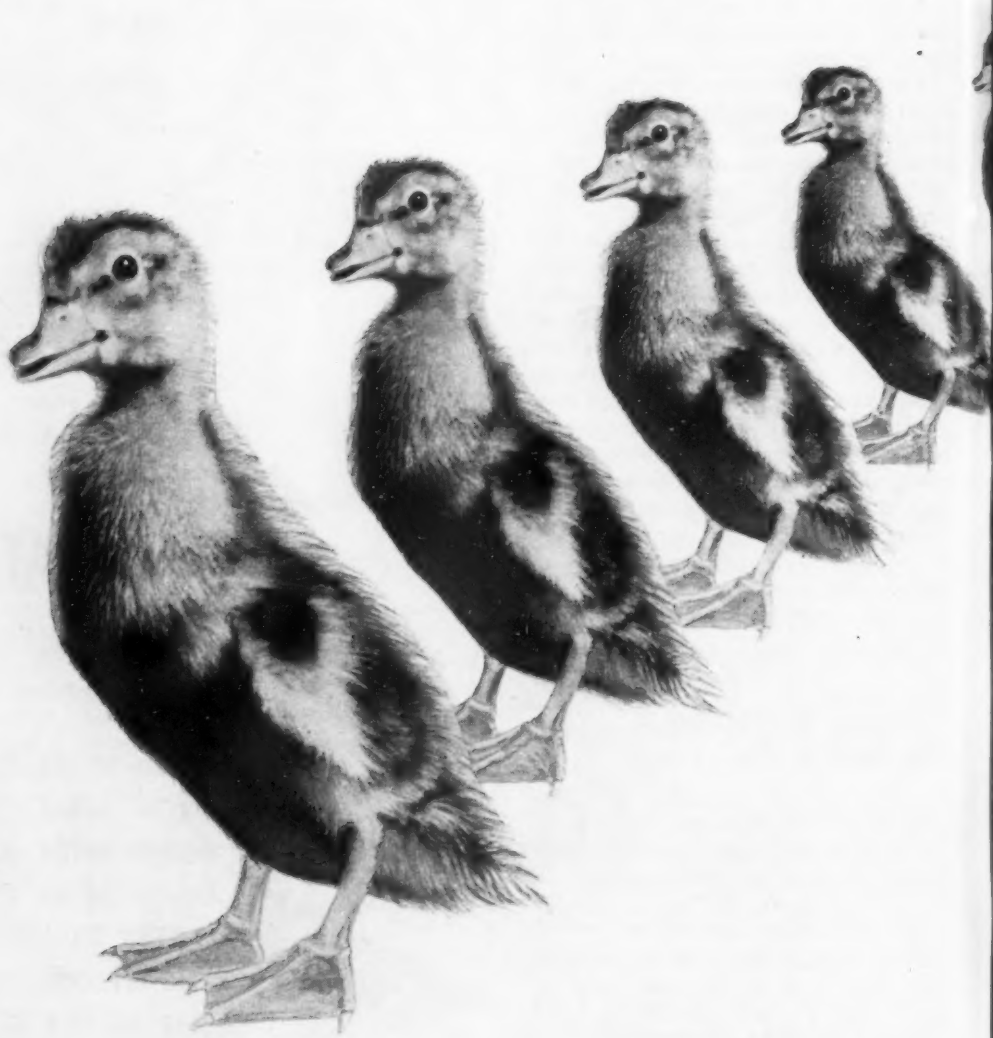

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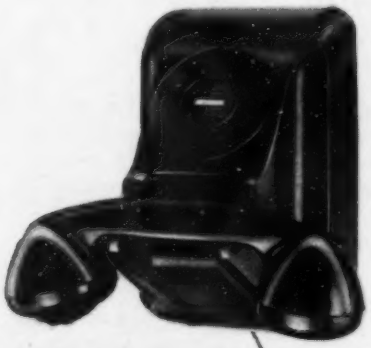

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USED AS WALL MODEL

LEICH DIAL TELEPHONE
USED AS WALL MODEL

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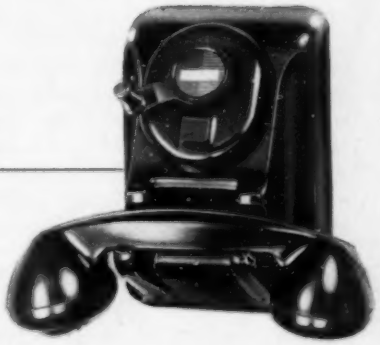

LEICH MAGNETO TELEPHONE
USED AS WALL MODEL

LEICH DIAL TELEPHONE
USED AS DESK MODEL

LEICH COMMON BATTERY TELEPHONE
USED AS DESK MODEL

WASHINGTON BUREAU REPORTS

by Roland Davies and Fred Henck

Rural Electrification Administration lining up key personnel for new telephone program. Planning work is under direction of Geo. W. Haggard.

THE RURAL Electrification Administration will be receiving applications for rural telephone loans from eligible borrowers within a few weeks, it has been indicated by REA Administrator Claude R. Wickard in a statement of policy on the agency's farm telephone loan program.

Mr. Wickard's comments came soon after President Truman, in signing the Hill-Poage measure permitting farm telephone loans by the REA, issued a lengthy and laudatory statement in which he declared that he was glad "Congress has written into the act in such unmistakable terms the principle of maximum telephone coverage of rural areas."

Meanwhile, it appeared that the REA would have its key personnel for the telephone program lined up by the time this magazine reaches its subscribers. Planning work is going forward under the direction of Deputy Administrator George W. Haggard, who succeeded William J. Neal in that post a few weeks ago when Mr. Neal was killed in an automobile accident.

Mr. Wickard, after pointing out that it will be a few weeks before the REA can handle loan applications because of the need for setting up the program and obtaining personnel, commented that "We expect to handle the new program under the same general organizational framework as that under which the Rural Electrification Act is being administered. It will, of course, be necessary to recruit additional personnel qualified in rural telephony.

"One of our first tasks will be to explore fully the ways in which the act's declared objective of area coverage may be achieved through self-liquidating loans. The experience of people who have provided telephone service in rural areas offers potential guideposts and will be drawn upon to the fullest extent possible.

"Extension of adequate service into the 'thinner' rural areas will obviously focus critical attention on construction and operating costs. In the early history of the rural electrification program, simplification of equipment design, new methods of construction and standardization played a big part in reducing construction costs and in getting power lines to the farms of the country.

"Since the war the possibilities of using electric power lines for telephone communications by means of the carrier current have been talked about a great deal as the farmer's hope to get telephone service. So far, the cost of equipment for this purpose appears to be too high to permit general use. But it is one avenue that ought to be explored further.

"The importance of telephone service to our farm people was emphasized repeatedly in the Congressional hearings by those who spoke against, as well as by those who spoke for, the legislation. Yet rural areas lag far behind in telephone service. Figures just released by the Bureau of Agricultural Economics show that only 40% of the nation's farms have telephone service of any kind. This is about the same percentage as in 1920, nearly three decades ago. . . .

"Another problem is inherent in the large number of small telephone enterprises which are potential borrowers of REA loan funds. It appears that there are about 6000 Independent commercial telephone companies, many of them with rural lines. In addition, there are many thousands of farmers' mutual or cooperative telephone enterprises, ranging in size from a half dozen to more than a thousand subscribers.

"In general, the states with the lowest percentages of farms with telephones appear to be also the states with the smallest number of mutual associations. This holds particularly true in the south where the farms with telephones total less than 20% in most states."

An REA summary of the legislation declared that the Administrator is empowered to make self-liquidating loans for the extension of rural telephone service on the "REA pattern." The REA pattern was described as "the area-coverage principle; that is, service on the same basis for all throughout the area."

President Truman's statement declared that "The need of our farm people for adequate telephone service at reasonable rates is second only to their need for dependable, low-cost electricity. Indeed, I think it has been brought out quite clearly in the House and Senate hearings on this bill that no group of people needs telephone service as much as do our farmers. The farm is a place of business as well as the home of the farm family. Its relative isolation makes the telephone even more necessary to farm people than to city dwellers for emergencies, for greater economic well-being, and for the health and happiness of all members of the farmer's family.

(Please turn to page 56)

Analysis Of And Comments On The New *Rural Telephone Law*

THIS ACT, allowing loans to be made by the Rural Electrification Administration for rural telephone purposes, became law upon the President's signature October 28, 1949. It is an amendment to the Rural Electrification Act of 1936, and must in some respects be read in connection with the original Act.

TERMS OF LOANS: The terms and conditions of the loan contract, and the form of application for a loan, have not been announced by REA at this writing. The law provides, however, that the loans "shall be self-liquidating within a period of not to exceed thirty-five years and shall bear interest at the rate of 2 per centum per annum". Presumably this means that the loans will be made for 35 years; that 1/35th of the loan will be payable on principal each year, and that the 2% interest will apply only on the unpaid portion of the loan.

PURPOSES OF LOANS: Loans may be made "for the purpose of financing the improvement, expansion, construction, acquisition and operation of telephone lines, facilities or systems to furnish and improve telephone service in rural areas." Loans may also be made for the purpose of refinancing outstanding indebtedness of persons furnishing telephone service in rural areas, when the Administrator determines that such refinancing is necessary in order to furnish and improve telephone service in such rural area, provided that not more than 40% of a loan may be used for refinancing.

EXISTING TELEPHONE COMPANY PRIORITY AS TO LOANS: The Act provides that for one year from its effective date—that is, until October 28, 1950—applications for loans from persons supplying telephone service in rural areas on the effective date of the act shall be considered and acted upon "before action is taken upon any application received from any other person for any loan to finance the furnishing or improvement of telephone service to substantially the same subscribers".

It should be noted that this is not blanket prohibition against loans to others than existing telephone companies during the first year. The prohibition is against loans to others who would compete with existing companies supplying service in rural areas.

LOANS TO OTHERS: Subject to the foregoing, loans may be made to "cooperative, nonprofit, limited dividend or mutual associations" for the purpose of financing the improvement, expansion, etc., of telephone service in rural areas.

No provision is made for loans to public bodies, such as municipalities.

There are certain restrictions upon loans at any time to others than existing telephone companies. One is that, in a state with a regulatory commission having jurisdiction over telephone companies and which is empowered to issue certificates of convenience and necessity, such a certificate shall be required before a loan is made. In other states the Administrator must certify in writing that "no duplication of lines, facilities or systems providing reasonably adequate service" will result from such loan.

GENERAL LIMITATION ON LOANS: The Act contains some limitations applying to all loans. The Administrator must so far as possible, obtain assurance that the telephone service to be furnished or improved by such loan will be made available to the widest practicable number of rural users. He must also certify that in his judgement the security for any loan is reasonably adequate and that such loan will be repaid within the time agreed.

LIMITATION ON REA OWNER-

(Please turn to page 47)

CALL COMPLETIONS | by Stuart H. Kelly

COMPLETION of calls is one of the many aspects of our business that can only be solved by the hearty cooperation of all of us, *installers, salesmen,* and *operators*—all of us aiming at delivering the one thing we sell, namely conversations. To energize all of us in this endeavor means that management must define the problem and state the answers in such an articulate way that we all will be inspired to look upon every call or potential call as an opportunity to deliver the only product we have to sell—*the completed call.*

Little things often promote a completed call. We might consider a few examples. First we can be sure that whatever improvement is made in local completion will also be reflected in better toll completion. Then there is the matter of phrases. We need and must have an imaginative, creative, sympathetic, and objective outlook on development and use of phrases and on dealing with people both inside and outside of our business. Like most of us, the customer can often be influenced by suggestion. Where there is an option, a slight difference in phrase may mean a difference in completion. For example, there is a wide contrast between *"I will call you"* and *"May I call you?"* The first phrase assumes the *favorable answer.* The second implies a *doubt in our mind as well as the customer's* and he will often-times resolve that doubt to our loss. And back of the phrase—much more important than the words in it—is the *attitude and spirit and viewpoint* of the operator handling the call—her *cordiality* and *courtesy evidenced* in tone of voice and expressed intent which inevitably will impress the customer of her desire to complete his call and to merit his implicit confidence that she will do all that can be done to that end.—*(Excerpt from address delivered at the 1949 convention of the North Dakota Independent Telephone Association.)*

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Cat. No. AE-29—Magneto—1400-ohm Ringer
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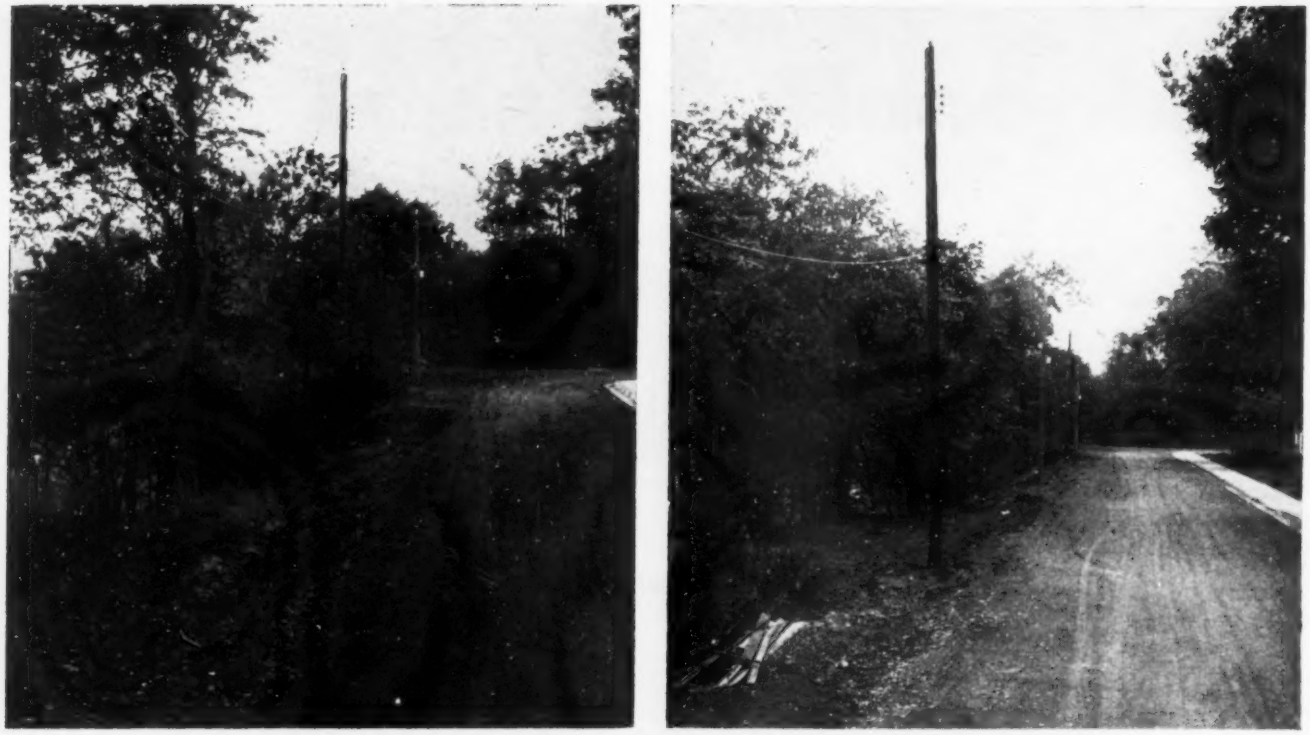
(Complete listing in Automatic Electric Cat. 4055-E; if this catalog is not in your file, we'll send it promptly, at your request. The Lift Bar is also available separately, for mounting on existing Type 40 Monophones.)



Views of cable after suspension at 200 lbs. tension on 100 ft. span giving approximately 2 ft. sag.

New Thoughts On Cable Construction

By P. M. Ferguson, Jr.

Assistant Manager & Engineer,
Mankato (Minn.) Citizens Tel. Co.

WITH THE high prices telephone companies have had to pay for telephone cable and associated supplies and new wage scales every year, the cost of providing service has been constantly increasing. Probably no section of the outside plant has had a greater cost increase than the cable plant. Companies have purchased "Jeep" diggers, spinning machines, and other equipment with the one thought in mind of cutting costs. Yet we have not gone right back to the source to see if we could not get a cheaper cable which would provide as reliable a grade of service as the lead cable we have used for years. On the other hand we have all tried the new plastic and neoprene drop wires, and speaking for our company alone we have had wonderful success with the plastic drop wire. We have found our maintenance costs on drop wire decreasing and our trouble reports for wet drops have also decreased. In fact in the summer of 1947 it was not unusual to use every man in the outside plant on trouble after a heavy rain storm. Since the installation of over a million feet of plastic drop wire we find that one or at the most two extra crews are all that is needed for clearing the same type of trouble.

Recently we read an article in TELEPHONE ENGINEER AND MANAGEMENT on the use of a five-pair neoprene cable for use in locations where several drops were strung to one building. About the same time we received some advertisements on a new all plastic cable of 11, 16, 26, 50 and 100 pair capacity in either 19 or 22-gauge conductor size. The cable appealed to our staff and we sent for samples which we could test and examine. We had already noticed that the neoprene drop wire weighed more than the plastic wire and called for greater clearances because of its greater sag. Our thought which we have since confirmed is that the new plastic cable being lighter could be strung without any messenger whatsoever in the same manner as the 5-pair neoprene cable and without as much sag.

Upon receipt of the plastic cable we put it to a tension test with a dynamometer and Coffing Hoist. We placed 450 pounds of tension upon a sample of the 25 pair cable and installed several telephones at one end of it. We found that at this tension there was no ringing induction, no cross talk, and no apparent damage to the cable after it was under this strain for over 48 hours. It might be well at this point to give a brief description of this wonder cable. Each individual 22-gauge copper conductor is insulated with polyethylene having a thickness of 15 mils. All the conductors are then bound together with one creped Kraft paper tape. For bonding purposes and also shielding purposes an aluminum tape shield .004" thick is then wound over the Kraft paper. The sheath of the cable is gray Polvinyl Chloride having a thickness of 50 mils on the 11, and 26 pair cable, and a thickness of 60 mils and 75 mils on the 51 and 101 pair cables respectively. The manufacturers claim that the outer sheath will stand a tension of 1,800 lbs. per sq. inch, and the elongation at rupture is 200%. For further technical details the manufacturer prints a technical bulletin.

About this time we had a job come up which called for the moving of an aerial wire pole line in

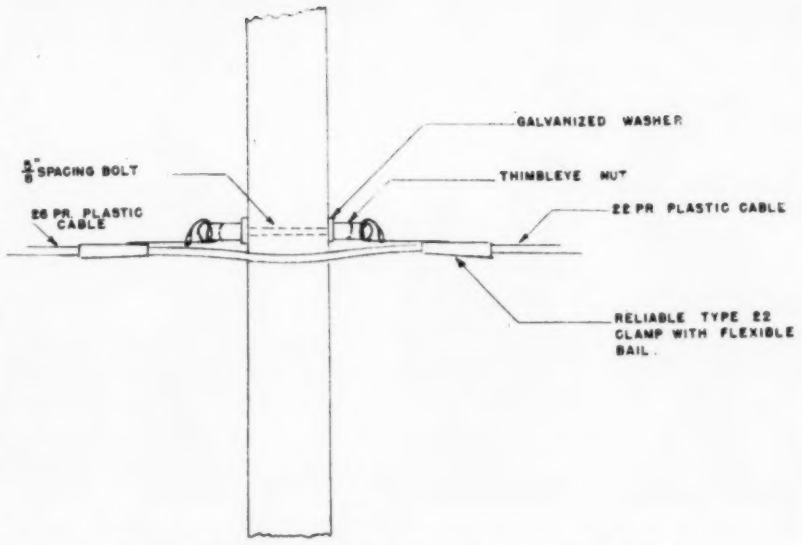


Fig. 1—Use of Reliable No. 22 clamp with flexible bail.

a small village which we serve. The new cable seemed to be the answer to the job inasmuch as we felt we could install it faster and cheaper than ordinary lead aerial cable. Buried cable was not considered because we felt further street alterations would be made in later years and also terminal poles would have to be installed anyway. The job involved replacing eight spans for about a total distance of 700 feet and meant the installation of three terminals due to the fact that it is a resort area and cottages are being built each year. We suspended the cable using a Reliable No. 22 clamp with flexible bail as shown in *Figure* 1. At each pole we used two clamps, one in each direction as you do in long drop wire spans. Instead of using regular drop wire hooks we used a double arming bolt run through the pole in the direction of the cable run and on each end of this bolt we screwed a thimbleye nut. We then placed the Reliable clamp through the thimbleye nut. Our spans average about 100 feet in length and by using a Coffing hoist and dynamometer it was discovered that a strain of 200 lbs. gave a sag of only two feet on the twenty-five

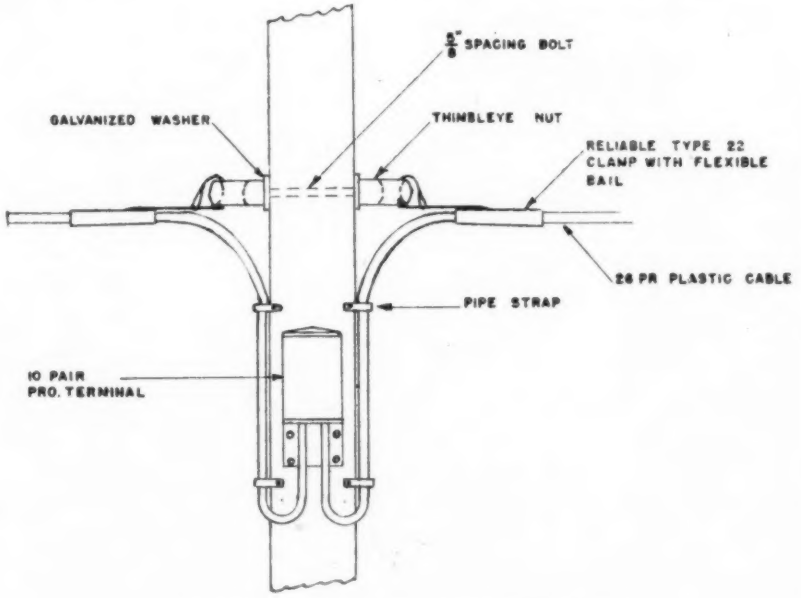


Fig. 2—Treatment of cable at terminal poles.

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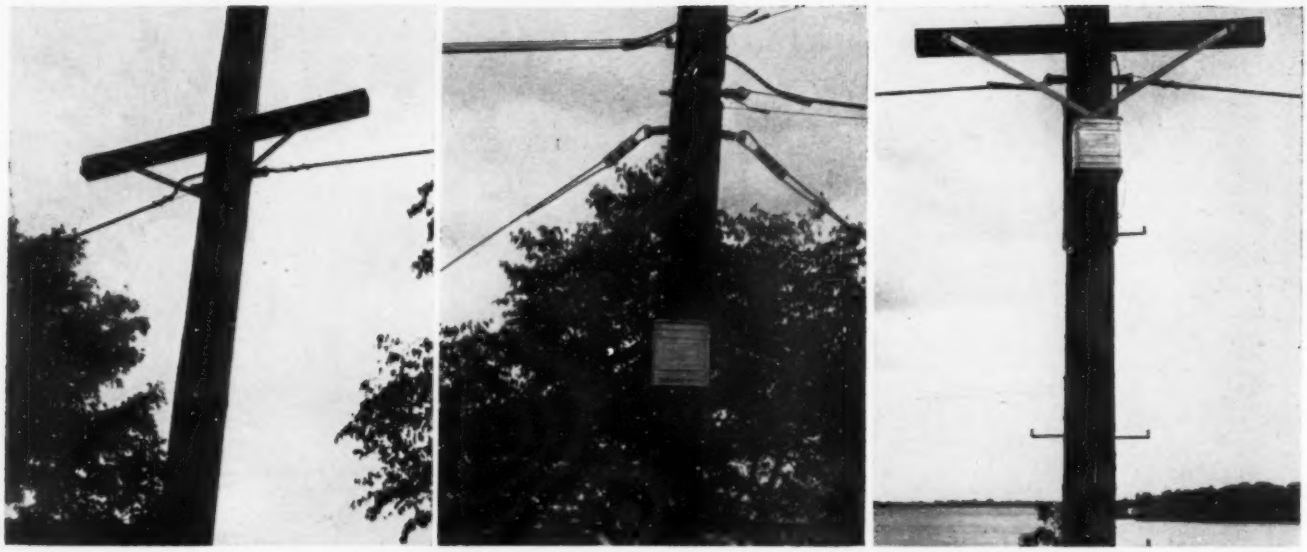


LEFT: Method of suspending cables at poles where no terminals are used. CENTER: Method of dead-ending cable at last cable terminal. RIGHT: Method of terminating cable on terminal poles showing double entrance of cables into cable terminal.

pair cable. This sag was satisfactory to us and rather than put exessive strain on the cable we hung the cable at this tension.

Although this cable can be spliced we preferred to go all out in our experiment and run the full 25 pair into the cable terminal and bridge the multiple pairs on the terminal lugs and splice the remaining pairs out within the terminal. Again we found that time could be saved and the job made simpler. In *Figure* 2 you may see how we treated the cable at the terminal poles. While it is true that we now have two cables entering the terminal instead of the usual one in the ordinary practice, we felt that the slight inconvenience to men working on the pole was more than made up for in the saving of splicing time.

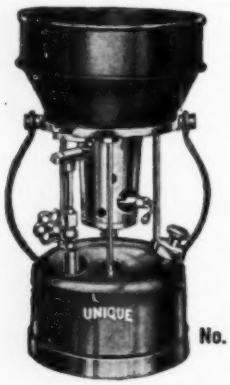
There are several minor points which have come up to favor this cable. First, due to the polyethylene insulation on the individual conductors it is possible to bring outside cables right into small exchange buildings and terminate it on the main frame. No splicing into silk and cotton cable is necessary. Secondly, during the process of construction it is necessary to only tape the cable with rubber and friction tape when it is cut for length. You don't have to stop and solder up the ends. Third, suppose in a short time our estimate is proven wrong and the 26-pair cable we installed is too small. It's an easy matter to install an additional 11-pair or another 16-pair cable without disturbing the old one. We don't have to respin the old cable to make way for the new. Secondly, the old cable will give us very little interference in the hanging of the new cable. Fourth, minor cuts in the sheath will not cause serious trouble inasmuch as the polyethylene insulation on each individual conductor is more impervious to moisture than rubber.

The cable is exceedingly easy to handle. Being very light we feel that the average small company can install this with three men at least and no heavy equipment is needed for the installation. The worry over kinking cable is eliminated since you could tie a knot in this cable if you wanted to.

Another feature that will appeal to the smaller companies particularly and also to their big brothers is the cost of the cable itself. The latest figures we have studied on cable show this new plastic cable to be less costly than 22 gauge lead cable. For your information I am glad to pass on this small comparison in cost which was made during the latter part of September.

	Lead Cable M ft.	Ankoseal Cable M ft.
16 pr. 22 gauge	$146.70	$ 97.75
16 pr. 22 gauge tape armored	246.80	156.50
16 pr. 24 gauge	118.90	
16 pr. 24 gauge tape armored	211.70	
26 pr. 22 gauge	189.60	170.50
26 pr. 22 gauge tape armored	310.40	258.00
26 pr. 24 gauge	150.70	
26 pr. 24 gauge tape armored	249.40	

It should be pointed out that the prices for lead cable are F.O.B. Chicago while those of the plastic cable are F.O.B. Ansonia, Conn. However, the light weight of the plastic cable will somewhat offset the difference in freight between the two points of manufacture. The 26-pair plastic cable weighs 205 lbs. per thousand feet or .2 of a pound per foot, while lead cable of the same gauge and capacity weighs .48 pounds per foot. From this brief comparison it can be seen that for the same gauge cable the plastic cable costs from 10% to 33% less in these two capacities and in the



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16 pair size it costs less than 24 gauge lead or lead tape armored. In fact from the cost of cable alone the 16 pair plastic cable at approximately 10 cents per foot equals the price of five drop wires at a cost of approximately two cents per foot and the plastic cable has three times the capacity for service.

We have seen in neighboring exchanges a tremendous use of many spans of drop wire. This practice is of course resorted to where cable facilities are inadequate. It seems to us that it would be less costly from a labor standpoint to install this 11-pair or 16-pair plastic cable instead of 10 or more drops. By using 11-pair or 16-pair unprotected terminals and putting the incoming cable on the cable side of the terminal and the outgoing cable on the drop side of the the terminal it seems that several blocks of this cable could be installed quickly to provide service until the greater capacity lead cable is permanently installed.

The smaller companies who are attempting to improve and modernize their plants usually have an enormous, for them at least, capital investment to make. By the time they have purchased a dial switchboard, new telephones, new poles, erected a new building, there isn't much left and in many cases they have been forced to skimp somewhere along the line. Its easy, to say that drop wire will do just as well as cable or a 25-pair cable will be adequate even though there is every reason to doubt that drop wire is the right answer or that the smaller cable will long be sufficient. Since the original cost of the plastic cable is less than lead cable and since the cost of putting this cable in service is far less than for lead cable we think the smaller companies particularly should consider this new product seriously. In addition the smaller companies do not have the construction crews with the experience in spinning cable nor do they have spinning equipment, dynamometers, winch equipped trucks and other specialized equipment for aerial cable construction. The new cable is so easy to handle and hang that many of you will wonder, as we did, as to where the joker is hidden. Our company feels that the experimenting we have done bears out our original belief that plastic cable is feasible in the telephone field, and that while time alone will give all the answers the original savings in this new type construction are worth the risk involved.

Some of you may ask "*What about this cable under sleet conditions?*" Recent tests which one manufacturer made on a sample of 25 pair cable of this type for us indicated the breaking strength to be approximately 1,200 pounds. If we have a sleet condition giving us one inch thickness of ice or a total diameter of cable and ice of 2½ inches (the diameter of plastic 25-pair cable is approximately ½ inch), the ice will weigh 306 lbs. in a 150 foot span. With a tension of 200 lbs. in the cable originally we are still under the breaking strength of the cable. If we have a 2" thickness of ice or a total diameter of cable and ice of 4½ inches the ice weight alone will be 1,017 lbs. in the same 150 foot span. Obviously our cable will break but you must admit that at that load a lot of other outside plant is going down also. There is some doubt in our minds about the sleet propensities of plastic cable. We are inclined to believe that because of the plastic sheath this cable will not ice up as fast as lead cable.

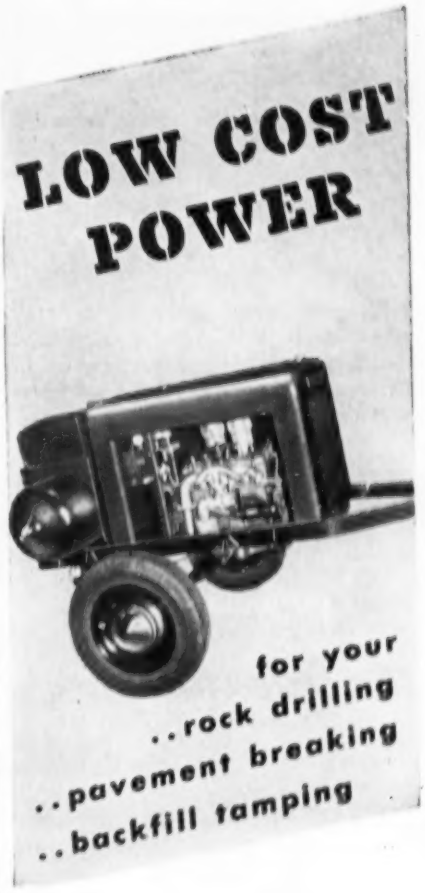
You will notice that this article is titled "New Thoughts on Aerial Cable Construction." The ideas presented are admittedly radical, but so is the Poage bill.

Time alone will give us the complete answer on this cable. Many of us in the operating field feel that no matter how many laboratory tests are made on new equipment and supplies the real test comes in the field. So far we feel that this cable is the answer to cutting costs. The performance so far has been highly satisfactory. You might ask what effect the wind will have on this type of suspension? The location of our first installation is beside a lake where the wind gets full opportunity to swing it. Next year I can better answer your question on this point. So far the cable is giving excellent service.

Admittedly we are experimenting with this cable, however, we feel that the possibilities offered are greater than any other type of cable has advanced. We frankly expect some difficulties but in an industry that is used to meeting difficulties certainly ways can be found to overcome what faults this cable may develop. At least the cable gives us a chance to break away from the old time-consuming and expensive methods of aerial cable construction.—THE EDS.

New Owners For Manilla, Ia., Exchange

Mr. and Mrs. John Paul Jones and Mrs. J. S. Hardgrove of Chariton, Ia., have purchased the Manilla (Ia.) Telephone Co.



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"Democracy"

(Continued from page 30)

about government operation of large industries in this country is that it would create the greatest and most powerful bureaucracy the world has ever seen, with corresponding regimentation of the citizenship coupled with the loss of many privileges it now enjoys.

The full effect upon us of the impairment of our system of free enterprise can be only a matter of conjecture. Against such conjecture we have positive knowledge, from long experience, of the results of our present system of free enterprise combined with our democracy.

We know that, under our system, our nation has become great without sacrifice of the inherent rights and freedom of the individual.

We know that under this system we have the highest standard of living of any people in the world, and that this has been the situation over many years, including long periods of world peace.

We know that, under our system, the only limitation on the lawful progress and advancement of the individual is himself.

Our situation can, I think, be summed up as follows: Our democracy comes from the combination of our highly democratic Constitution and a citizenship which acts democratically. Our American way of life is the result of our democracy plus our system of free enterprise.

One of the high purposes of our forefathers in the establishment of our Constitution was "to secure the blessings of liberty to ourselves and our posterity".

Now, 160 years later, we—some of that posterity—are enjoying those blessings. How long we or our own posterity will continue to enjoy them depends upon the citizenship itself, since our constitutional control over our government is so complete that we cannot be deprived of our rights and liberties excepting with our consent or by our negligence.

If a majority or perhaps even a substantial minority of us ever espouse "isms" or ideologies or Utopian schemes incompatible with the principles of democracy and free enterprise that have made our nation great, then we—all of us—will lose our American way of life and probably our democracy as well.

This conclusion is inescapable: In the preservation of our American way of life, our free enterprise and our democracy, we, the people of the United States, have no one to fear but ourselves.—THE END.

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Improvements Planned For Halbur, Iowa

Halbur (Ia.) Telephone Company directors have voted to increase the company's capital stock from $1,400 to $20,000 as the first step in a proposed modernization program, John Schenkelberg, secretary-treasurer, announced recently.

The action divides the stock into $15,000 of common stock, consisting of 150 shares of a par value of $100 per share and $5,000 of four per cent preferred stock, divided into 50 shares of a par value of $100 per share. The directors also extended the period of corporate existence for 20 additional years from May 1 1949.

Rural Telephone

(Continued from page 39)

SHIP OF TELEPHONE PROPERTY: The same provision applies to telephone property as that applying, in the original REA Act, to electric properties—namely, that REA must sell, within five years, any property taken under foreclosure.

GEOGRAPHICAL LOCATION: The original REA Act contains limitations, with respect to geographical location, upon loans made for electric purposes. The amendment covering loans for rural telephone purposes provides that loans may be made without regard to geographical location.

AUTHORITY OF STATE REGULATORY COMMISSIONS: The Act specifically provides that the authority of state commissions, boards or other agencies, now or hereafter over telephone companies, shall not be impaired by this Act.

RURAL AREA: As defined by the Act, a rural area is "any area of the United States not included within the boundaries of any incorporated or unincorporated city, village or borough having a population in excess of one thousand five hundred inhabitants." A rural area may apparently be of any size or shape.

GENERAL: There is no limitation in the Act, as finally passed, on the size of the telephone company or other agency borrowing. Presumably a large company is eligible to borrow, provided the funds borrowed are to be used for the purposes specified, and within a rural area, and that not more than 40% of the loan is to be used for refinancing.

It seems apparent from all of the foregoing that telephone companies operating wholly or partly within a rural area as defined by the Act, have the choice of developing as intensively as possible their own rural territory (whether they do that with or without REA loans) or, very likely, of seeing the territory developed by others—probably cooperatives, after, and in some cases even before, the "year of grace".

Twenty-five million dollars has already been appropriated by Congress to be used by REA in making loans for rural telephone purposes. It is understood that the processing of applications for loans by telephone companies will begin as soon as REA can organize its staff for handling them.—THE END.

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HERE IT IS!

The DAN MAC Steel Handset Wall telephone was requested by a number of Independent telephone men—so here it is.

A neat appearing steel case finished in black enamel, Alnico generator, anti-sidetone circuit, condenser, the service proved single gong ringer and a fine capsule type handset. Here is the small neat appearing telephone that we were asked to build. IMMEDIATE SHIPMENT.

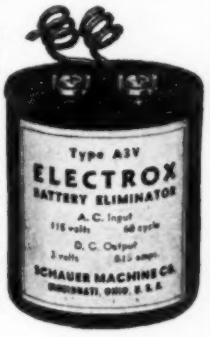
It's low priced too—1600 ohm $20.00
2500 ohm 20.50

We Recommend and Can Deliver Promptly

Safety Belts . . .
Climbers . . .
and a complete stock of Linemen's Equipment
made by
W. M. BASHLIN CO.
Popular with telephone men for many years.

ELECTROX

Electrox Battery Eliminators are designed for a single telephone or a large switchboard. Smooth and dependable in operation they last many years. Write for information on an Electrox for your specific application.



If it's used in the telephone business—write

DANIEL H. McNULTY
President-Manager

TELEPHONE REPAIR & SUPPLY COMPANY
1760 Lunt Ave. • Chicago 26, Illinois

The telephone business is local

Telephone service is largely a home-town service. The telephone system in a town is tailor-made for that town's needs. Nine out of every ten calls it carries go to other telephones in the town. The best measure of the service is its value to the community in convenience, welfare and prosperity.

The advertisement on the opposite page appears in national magazines during November. It shows how closely the telephone industry is linked with every community's daily life.

An advertisement of the

BELL TELEPHONE SYSTEM

HOME TOWN BOOSTER

What the prosperity of the Telephone Company means to thousands of people and communities

Your Bell Telephone Company does more than provide good telephone service. Directly and indirectly, it touches some part of the business life and prosperity of almost everybody in town.

It is essentially a local enterprise. It is managed by home-town people. Its employees are home-town people. In your neighborhood – perhaps on your own street – are also people who have invested their savings in the telephone business.

Matter of fact, about one family in every 35 in the country has someone who works for the Bell System or has invested in it.

Many more people, outside the telephone business, also get some part of their livelihood from it. Not only do telephone people buy from local merchants but the company itself is a large purchaser of local materials and supplies. Last year, Western Electric – the manufacturing unit of the Bell System – bought from 27,000 different concerns in 2800 cities and towns.

Since the war, Bell Telephone Companies have put over $4,000,000,000 into new facilities. This money has been spent to improve telephone service and to meet heavy postwar demands. It has meant work and jobs for people in many lines.

Your telephone company wants to keep right on moving ahead . . . improving service, making an important contribution to prosperity.

Future progress depends, of course, on adequate telephone rates. Rates are still low. The increases granted so far, plus those now requested, are generally far less than the increases in most other things in recent years. They average only a penny or so per call.

BELL TELEPHONE SYSTEM

Capital Markets

(Continued from page 32)

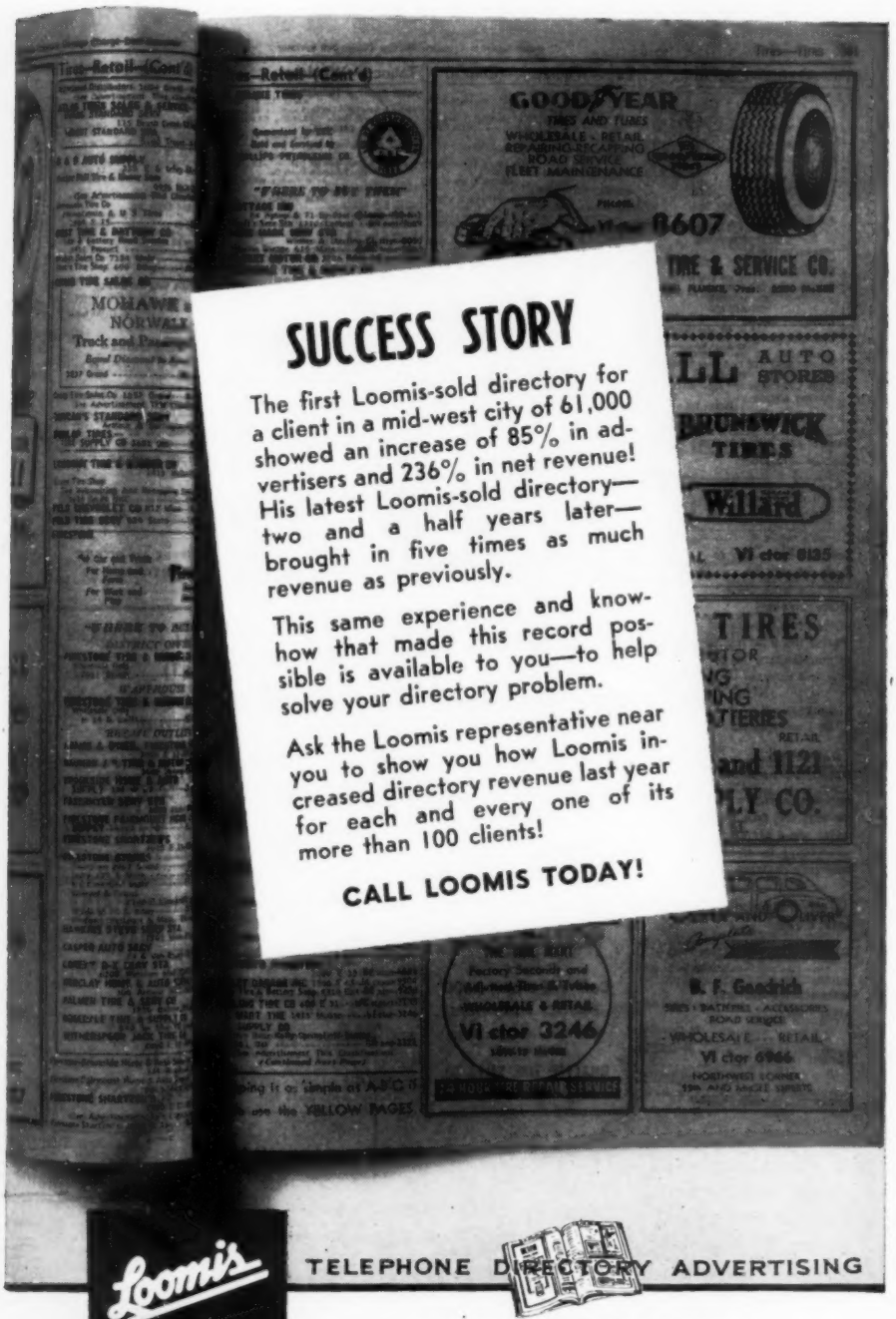
by speculative than by investment buying, but it is investment buying that has so readily taken up the new common stock offerings. Securities markets are people, most of them widely separated and not acting in concert, and their investment buying or their refusal to buy is always influenced by their views of the economic and financial outlook, based on their own experience and on that of their friends and competitors. It has been their confidence in this outlook in recent months, just as it has been that of the speculators, which has made their market what it has been, despite the dismal conditions prevailing in steel and coal, politics and foreign affairs.

Perhaps the greatest contrast between the conditions of 1948 and those lately prevailing in the new issue markets has been in the field of preferred stocks. In June 1948 Consumers Power (Michigan) offered through bankers $20,000,000 of $4.52 preferred stock at $102.725 to yield 4.40%; after the syndicate worked on it for a month more than half the shares were still unsold and in the open market the stock was bid as low as 97.50. In August 1948, Northern Power of Minnesota offered through bankers $20,000,000 of $4.80 preferred at 102.00 to yield 4.70%. It moved out very slowly. In the same month Public Service Electric & Gas (New Jersey) offered $20,000,000 of new preferred stock for competitive bidding. The best bid received, after two attempts, was 100.90 for a $4.50 dividend; company rejected it. But this October the company offered $25,000,000 in new preferred, for which it received and accepted a bid of 100.15 for a 4.08% dividend; re-offering was made at 102 to yield 4.00%, and the issue was quickly oversubscribed.

Other typical recent transactions include: Pennsylvania Power & Light, sold in August $8,700,000 of 4.50% preferred at 103.75, a 4.34% yield; Delaware Power & Light $5,000,000 of 4.28% preferred at 102.375, a 4.18% yield; Hartford Electric Light in September $8,000,000 of 3.90% preferred at par to yield 3.90%. Gulf States Utilities also in September placed at private sale $6,000,000 of 4.40% preferred at 101.00, a 4.36% yield. Thus the electric utilities lately have easily done what it was impossible to do a year ago.

But the independent telephone utilities have not been able to obtain preferred stock money at such low per annum costs. Table Two shows only ten such offerings during the period; none of them was a large one, only two of them exceeded $1,000,000 sale value; these were offered at 4.50% and 5.00% dividend yields. Offering yields of the other eight issues ranged from 4.50% to 6.00%, with one at 4.00%, a low rate for a small telephone company. This last mentioned was the issue in July last of Warwick Valley Telephone Company, and is worth some particular comment.

Warwick Valley Telephone Company operates in three small communities in Orange County, New York State, about 50 miles north of New York City. Company in July last offered at par 1,500 shares of its $4.00 dividend preferred stock, $100 par. This little company thus sold its preferred stock at the same dividend yield to the investor as the great Public Service Electric & Gas Company of New Jersey on its $25,-


SUCCESS STORY
The first Loomis-sold directory for a client in a mid-west city of 61,000 showed an increase of 85% in advertisers and 236% in net revenue! His latest Loomis-sold directory—two and a half years later—brought in five times as much revenue as previously.
This same experience and know-how that made this record possible is available to you—to help solve your directory problem.
Ask the Loomis representative near you to show you how Loomis increased directory revenue last year for each and every one of its more than 100 clients!
CALL LOOMIS TODAY!
GOODYEAR
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Willard
TIRES
B. F. Goodrich
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ADVERTISING COMPANY
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Gettle Bldg., FT. WAYNE, INDIANA
ST. LOUIS, MO.
KANSAS CITY, MO.
UPPER DARBY (Phila.) PA.
OMAHA, NEBR.

000,000 offering of preferred stock this October.

Warwick Valley Telephone at the end of the war had three central offices; the main office at Warwick had a manual switchboard serving local lines and automatic dial equipment serving rural lines, and two outlying points had small unattended automatic dial exchanges. Company decided to convert to automatic dial completely, and to finance this and provide facilities for about 225 held orders company issued in 1947 $100,000 of 4% preferred stock, offered to subscribers exclusively at par and fully subscribed. Shortly thereafter applications had increased at such a rate that it was decided to make further additions and extensions, and to finance this company sold an additional $150,000 in 4% preferred. No particular sales campaign was conducted, the company simply notified subscribers that the stock was offered to them, and the issue was over-subscribed.

Company's financial record is a good one. At the 1948 year-end company showed plant account of $351,342, an increase of about $40,000 over the preceding year, and net operating income of $16,059 for the year against $12,667 the year before. This 1948 operating income was approximately 7.20% of the $223,482 plant in service less depreciation reserve, not including $149,817 telephone plant under construction at the end of the year. The net income in 1948 covered preferred dividend requirements for that year 3.60 times, and if the plant under construction earns at anything like the same rate as the plant already in service, company's new requirements per annum for all its preferred stock should be covered not less than 2.50 times. Company has paid dividends of 8% per annum on its common stock for several years past.

Bonds and Debentures

BOND OFFERINGS have not done so well. In the open market, electric utility bonds are higher than they were a year ago (D-J average around 105.80 against 101.50), having firmed up steadily during the past six months; but new offerings lately have been too fully priced. Most of the larger bond offerings have been of issues carrying Moody ratings A or Aa. The movement of yields from month to month as shown by a complete record of new offerings is the following:

Rating	Range of Yields in % July	Aug.	Sept.	Oct.
A	2.75-2.90	2.82	2.75	2.75-2.82
Aa	2.75-2.97	2.67	...	2.70

(*Please turn to page 54*)

Table Two—Telephone Company New Capital Issues

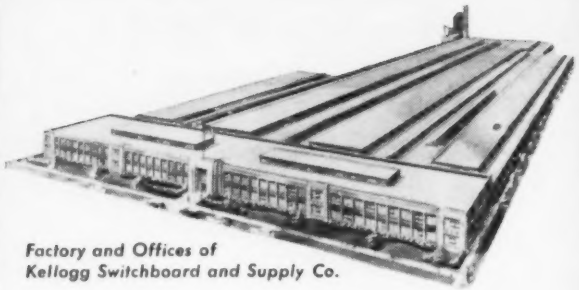
July-October 1949

Bonds and Debentures	Amount	Price	% Yield
July 1949			
Michigan Associated Telephone 1st 3.25% 1979	$2,500,000*	101.75	3.15
Geneva Telephone (Ohio) 1st 3.25% A 1964	125,000	101.75	3.20
New Brunswick Telephone Deb. 3.375% 1974	2,000,000	101.27	3.30
United Telephone (Mo.) 1st 3.75% B 1974	500,000*	100.00	3.75
Central Telephone (Neb.) 1st 3.25% 1974	500,000*	100.00	3.25
August 1949			
New Jersey Telephone 1st 3.50% 1974	500,000*	100.00	3.50
Richmond Home Telephone (Ind.) 1st 3.375% 1977	600,000*	100.00	3.375
American Telephone (Kansas) 1st 3.75% B 1974	500,000*	100.00	3.75
Colusa County Telephone (Calif.) 4% note 1969	105,000*	100.00	4.00
September 1949			
Ohio Associated Telephone 1st 3.25% 1979	1,750,000*	101.00	3.20
Associated Telephone & Telegraph Deb. 3.75% 1964	9,500,000	100.00	3.75
October 1949			
Northern Ohio Telephone 1st 3.25% 1974	1,000,000*	100.64	3.21

Preferred Stocks	Number of Shares	Price	% Yield
July 1949			
Mutual Telephone (Honolulu) Conv. 5% pfd. B $10 par	150,000	10.00	5.00
Warwick Valley Telephone (N. Y.) $4 pfd $100 par	1,500	100.00	4.00
Warren Telephone (Ohio) $5 pfd $100 par	3,000	100.00	5.00
August 1949			
Inter-County Tel & Tel (Fla.) 5% pfd B $25 par	4,500	25.00	5.00
Oregon Washington Telephone 5% pfd $100 par	1,500	98.00	5.10
Capital City Telephone (Mo.) 4½% pfd $100 par	3,000	100.00	4.50
Western Arkansas Telephone 6% pfd $100	1,000	100.00	6.00
September 1949			
Southwestern Associated Telephone $5.50 pfd no par	10,000	100.00	5.50
October 1949			
Northern Ohio Telephone 4½% pfd $100 par	13,575	100.00	4.50
Interstate Telephone (Wash.) $5.50 pfd $100 par	1,321	100.00	5.50

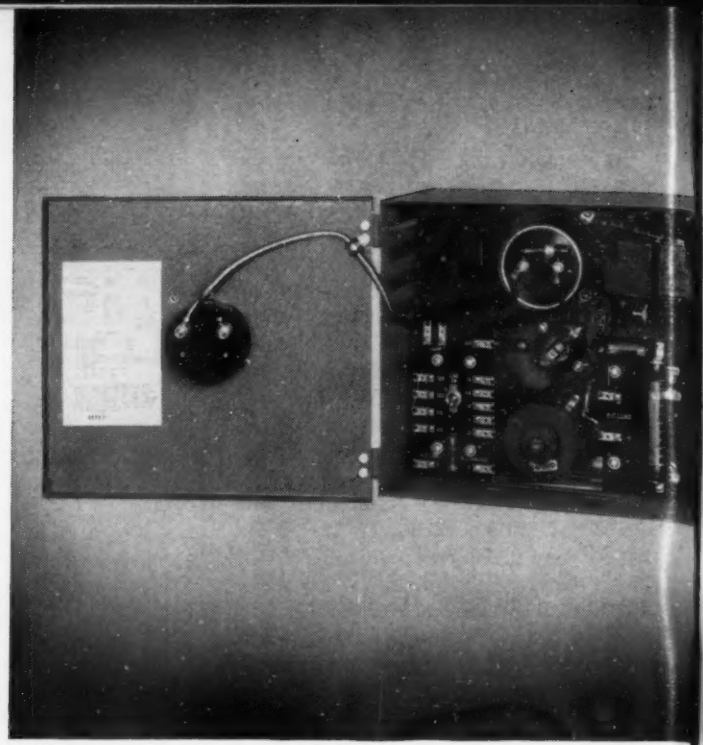
Common Stocks	Number of Shares	Price	% Yield
July 1949			
Warren Telephone (Ohio) Com. no par ($1.50)	5,000	20.00	7.50
August 1949			
Oregon Washington Telephone Com. no par ($1.20)	5,000	21.50	5.58
Bluefield Telephone (W Va.) Com. no par ($0.90)	17,500	12.00	7.50
September 1949			
Pacific Telephone & Telegraph Com. $100 par ($7)	100,012‡	100.00	7.00
Anglo Canadian Telephone Com. Class A ($0.60)	100,000	10.00	6.00
October 1949			
Kittanning Telephone (Pa.) Com. $25 par ($2)	3,000	45.00	4.44
Carolina Telephone & Telegraph (N. C.) Com. $100 par ($8)	29,750	100.00	8.00
Western Light & Telephone (Kans.) Com. $10 par ($2.00)	14,162	21.00	9.52

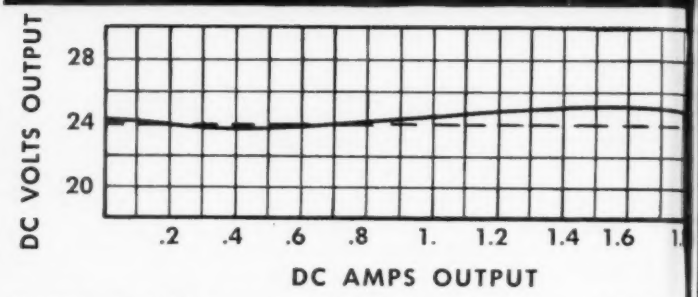
Note: *Private sale. ‡Shares offered to stockholders other than parent.



Factory and Offices of
Kellogg Switchboard and Supply Co.

Manufacturers as well as distributors of the finest quality equipment and supplies for the independent telephone field for over fifty years.





Steady D. C. Voltage required by switchboard lamps and telephone (especially dial) can always be assured with a RectiFilteR. Chart shows typical curve of DC output voltage under varying loads; proving that the RAYTHEON MFG. CO. unit provides stabilized output voltage regardless of load variations. With no moving parts, maintenance is low.

Sealed Against Trouble! Manufacturers of communication equipment insist on Kester Plastic Rosin-core Solder, because it makes a perfect seal. Eliminates high-resistance joints and intermittent open-and-closed circuits. Protect against trouble by using KESTER SOLDER COMPANY'S Plastic Rosin-core Solder throughout your system!

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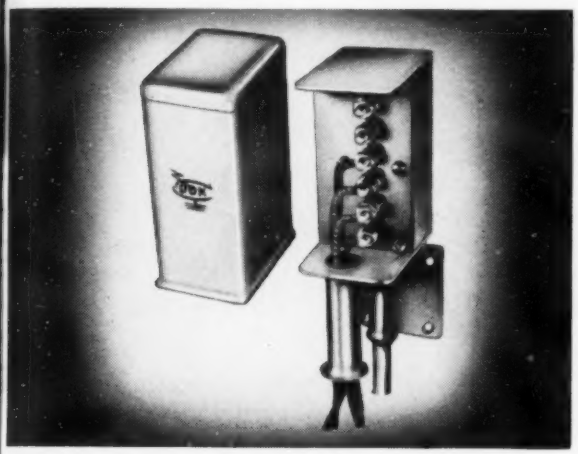
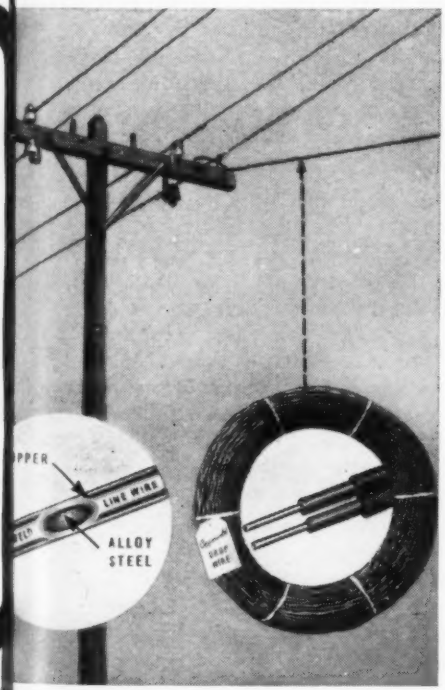
ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED F

Durable and Silent. The Sub-Cycle Master Ringing Converter changes frequency without moving parts, thus reducing wear and consequent adjustment and maintenance. Made by LORAIN PRODUCTS CORPORATION, this static-type frequency converter is available in several models.

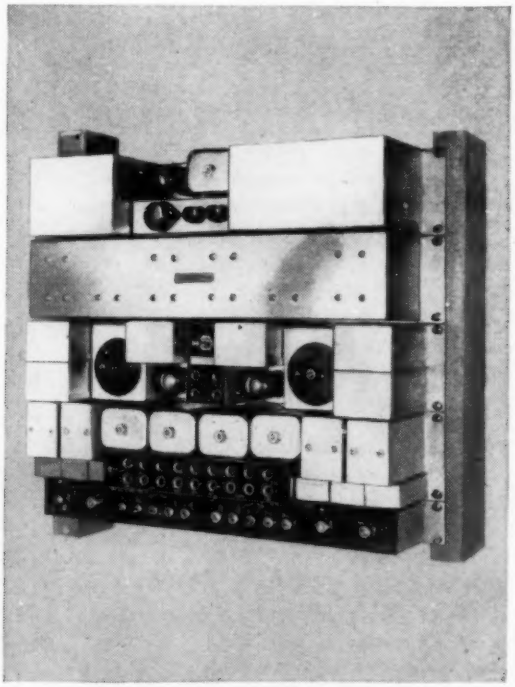


Saves Wire! The Cook 3-Pair XB Terminal permits more economical subscriber distribution of rural cable. Allows reducing the length of subscriber drops and eliminates long open-wire bracket lines. Avoids high-resistance joints and resultant maintenance. Made by COOK ELECTRIC CO.

"City of Chicago is almost utterly destroyed by fire," telegraphed Gen. Sheridan from the flame-swept city, Oct. 9, 1871. Serving through many such historical moments, Hemingray Insulators have kept pace with communications needs. Today, made by AMERICAN STRUCTURAL PRODUCTS CO., they are accepted as standard by the industry.



Savings All Along the Line result for telephone companies using Copperweld Line Wire and Drop Wire. They provide strength and conductivity, rust-resistance and ease of handling. Made by COPPERWELD STEEL CO., these wires improve voice transmission.



For Strong, Clear Toll Transmission and a quiet circuit, use the Kellogg Repeater. New, sharp cut-off filter aids in obtaining maximum usable gain. Important features are "unit" construction and ease of adjustment. Made by KELLOGG SWITCHBOARD & SUPPLY CO.

Prompt Delivery! Available *now*, for use with modern cable spinners, is Crapo Galvanized Steel Lashing Wire. Heavily-galvanized; .091" dia., 325' coils. "Stainless Steel" Lashing Wire (.045" and 0.65" dia.) also shipped promptly. Products of INDIANA STEEL & WIRE CO.

Capital Markets

(*Continued from page 51*)

Like all statistical presentations, this one can be misleading, particularly as to the Aa bonds. Most of the offerings in July, including the $80,000,000 Pacific Gas & Electric at 2.97% and the Public Service Electric & Gas $75,000,000 at 2.82% were successful, the bonds were readily placed and subsequently have held their price. But in subsequent months competition among underwriters has induced higher bids and unusually high re-offering prices. For example, Duquesne Light in October offered $15,000,000 of new 30-year first 2.625% at price to yield about 2.60%; although these bonds carried Moody's Aaa rating, and Duquesne is certainly an aristocrat, the bonds went very slowly. One has to go back to February, 1949 to find another offering of an Aaa issue of any size; that was the Duke Power Company $40,000,000 of first 2.875% 1979 on a 2.81% basis. At that time Moody's average of the utility Aaa rating, taken from open market quotations, was 2.72%, so that the Duke Power offering could not have been said to overreach the market. The life insurance companies and other big institutions refused to buy the Duke bonds, but smaller banks and other funds, which had been overlooked or neglected in previous high grade offerings, came in and made the issue a success. The Duquesne Light offering this October was priced to yield exactly the same as the Moody average rating for the month.

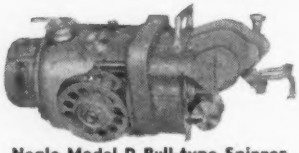
Other high yield offerings lately were the following: Indianapolis Power & Light $40,000,000 of 30-year 2.875%, rated A, priced to yield 2.77%, which met with buyer resistance; Northern States Power $15,000,000 of first 2.75% 1979, rated Aa, yield 2.67%, offered August 25, syndicate held open until October 10 with $6,000,000 unsold and the price slipping to 101.125. On the other hand, Western Electric $31,000,000 of collateral trust 3.50% 1974, offered to yield 3.35% were quickly sold, the insurance companies coming in for well over half the total. Other low yield issues in October were Arkansas Power & Light $8,700,000 of first 2.875% 1979, rated A, priced to yield 2.82%, Utah Power & Light $3,000,000 of first 2.875% 1979, rated A, offered to yield 2.75%, and Iowa-Illinois Gas & Electric $10,000,000 of first 2.75% 1979, rated Aa, priced to yield 2.70%. Final results of the three offerings last mentioned were not available by the end of October.

Independent telephone utilities cannot get their bond money at the low rates that the electric utilities do, they have to pay more. In Table Two there are only nine first mortgage issues, and only two of them for amounts exceeding $1,000,000, the yields at which these were placed were 3.15% and 3.20%. The other seven issues were for $600,000 or less, yields ranged from 3.20% to 3.75% with one small placing at 4.00%. The preponderance of private placings in this group is greater than usual.

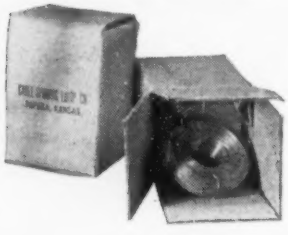
Bond money costs for the small telephone utilities have not been rising, there is little prospect that they will rise in the near term future. Such companies should be able now to drive as hard a bargain with their lender as they could have done three to six months ago, may perhaps do better.

Neale Model B Cable Spinner may be operated by one man. Works from ground or strand—makes cable spinning easier, faster, more economical.

Speed Construction and Maintenance



Neale Model D Pull-type Spinner gives you top efficiency.



Independent telephone companies from Coast to Coast report that cable spinning saves time and cuts costs in erecting and maintaining outside plant.

Like them, you'll find cable spinning fast, practical and economical when your crews are equipped with Cable Spinning Equipment Company tools precision engineered for the job. There's a complete line to choose from.

For BEST Results Use NEALE Wire

Available in 7 different types and sizes, Neale Spinning Wire meets the toughest construction and corrosion conditions.

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Learn How Cable Spinning Equipment Company tools can save you money.

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IT'S SO EASY!

Nowhere else on earth is telephone service so easy to use, so dependable, so valuable as it is in this country. Generations of telephone men and women have worked together continuously to make it that way. And right from the beginning, Western Electric has shared in the industry's progress by making good equipment that helps make good service possible.

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Mathias KLEIN & Sons
Established 1857 **Chicago, Ill., U.S.A.**
3200 BELMONT AVENUE, CHICAGO 18, ILLINOIS

Washington Bureau

(*Continued from page 38*)

"The importance of this new act is apparent from the fact that today only about 40% of our farms have any kind of telephone service at all. This is scarcely any improvement over 1920, when about 39% of them had telephone service. The rural telephone service trend is in striking contrast with the progress of electric light and power service in rural areas. In 1935, the year prior to the enactment of the Rural Electrification Act, only about 11% of our farms had electricity. Today almost 80% are electrified. Most of this gain has been due to the stimulus of the REA program. In the past year, REA-financed systems have been responsible for about three-fourths of all new farm electric service extensions. The success of the rural electrification program is a happy augury of what we may expect from this rural telephone program based on the same principles.

"In enacting this new legislation, we have made it our national policy 'that adequate telephone service be made generally available in rural areas through the improvement and expansion of existing telephone facilities and the construction and operation of such additional facilities as are required . . .' And the objective of this legislation is to implement that policy so as 'to assure the availability of adequate telephone service to the widest practicable number of rural users of such service.'

"I am glad that the Congress has written into the act such unmistakable terms this principle of maximum telephone coverage of rural areas. It is my hope that the provisions of the act will prove adequate to enable the (REA) to take all the steps necessary to realize that objective. I am sure that the states, persons now providing telephone service, new organizations of users, and the individual residents of rural areas all will cooperate fully to bring about the greatest measure of success under this new law.

"In particular, I wish to express my belief that by applying the REA pattern to meeting the need of our farm population for more and better telephone service, the Congress has acted to promote the general welfare

(*Please turn to page 58*)

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THE TELEPHONE TIE

His own name on the label

Designed by us . . . exclusive with us!

•

Order now for CHRISTMAS

Think how delighted the "telephone men" on your gift list will be to receive such a thoughtful, personal and different gift.

•

We will gift-wrap each tie in a beautiful box, enclose your greeting and mail in time for Christmas.

CUSTOM-MADE PURE SILK TIES . . . made in our own workrooms . . . hand-cut and hand-sewn with finest interlining for perfect knot.

Regular length or extra length and extra width for the tall man and big man. **$6.50** Postpaid

Available in five colors: Navy Blue, Green, Brown, Maroon and Grey.

MAIL AND PHONE ORDERS PROMPTLY FILLED

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Lenard Stern

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of our rural citizens and of the nation as a whole and, at the same time, to strengthen our private enterprise system. The combination of federal loans and technical advisory services with local initiative, and the assumption by people locally of the responsibilities of ownership, operation and control of needed service enterprises, has proved eminently successful in the field of rural electrification. I am confident that it will prove similarly successful in the rural telephone field."

Labor

WITH the ouster of the United Electrical Workers from the CIO as a communist-dominated organization, and the possible ejection from the CIO ranks of the American Communications Association, the nationwide telephone union, the Communication Workers of America, is assuming a more and more significant position in the CIO structure. The CWA now is one of the half dozen largest CIO affiliates.

It was expected as TELEPHONE ENGINEER & MANAGEMENT went to press that CWA President Joseph A. Beirne would be elected as one of the nine CIO Vice Presidents—the real governing body of the organization, along with President Philip Murray—to succeed President Albert Fitzgerald of the ousted UE. Mr. Beirne has been a member of the 51-man CIO Executive Board ex officio as a president of a CIO-affiliated union.

In addition, the CWA may be offered additional organizing authority when the Executive Board meets to realign the scope of each union's jurisdiction after the ousters of the communist-led unions. It might inherit some manufacturing jurisdiction from the UE, and possibly, if it wants it, authority in communications fields in addition to telephone, if the ACA is eliminated from the CIO ranks.

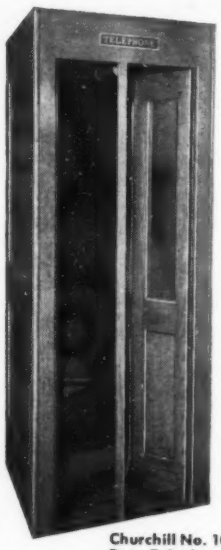
Opposition has shaped up from a number of quarters to the sweeping plans of the Western Union Telegraph Co. for a single record communications company in the United States. The Western Union project, as outlined in a letter from President Walter P. Marshal to Senator Ernest W. McFarland (D., Ariz.), who heads the Senate Interstate and Foreign Commerce communications subcommittee, is to seek to acquire both the international telegraph operations of the major Western Union competitors and the teletypewriter exchange service of the Bell System.

This would be done, as Mr. Marshall visualizes it, through Congressional authorization of 35-year loans from the Reconstruction Finance Corp., in contrast to the present 10-year limit. Other legislation needed would include authority for an inter-

(*Please turn to page 60*)

Charter members of the Alaskan Telephone Association, organized in Anchorage in September, tell plans for their new group to representatives of the Alaska Communications System and representatives of Kellogg Switchboard & Supply Co., in Anchorage for the cutover to a 3000-line dial telephone system for Alaska's key city. From left to right (back row): W. D. BURKE, Kellogg sales engineer; COLONEL JOHN WESTER and ALBERT ADAN, representing ACS; WARD CARROLL, Fairbanks, president of the new telephone association; JOHN F. CUSHING, Kodiak & Sitka Telephone Co., JAY HOUGHTALING, operations chief for the new Anchorage dial system; RALPH RENNER, Alaska Public Utilities, Cordova; JAMES H. KELLOGG, president, Kellogg Switchboard & Supply Co.; (front row): MRS. MARTHA CUSHING, secretary-treasurer of the Alaskan association; MRS. M. S. SANDS, Matanuska Valley Telephone company, Palmer; MRS. FRANCES BAKER, Fairbanks Municipal Telephone company; M. S. SANDS, Palmer, vice president of the new association, and E. W. MILLER, Kellogg apparatus sales manager.

STROMB



The Churchill No. 100 Fol Door Telephone Booth

churchill telephone boo

... Users appreciate its privacy a convenience

... Operating companies enjoy profits

The records of many operating co panies prove the Churchill No. 100 Fo ing Door Telephone Booth to be builder of pay station business.

It is constructed as a single unit a equipped with reinforced back panel mounting a wall telephone or co collector.

Included as standard equipment a electric light and automatic elect ventilator.

Available in two finishes:

No. 100-A—selected white oak, light medium oak satin finish.
No. 100-B—birch, mahogany finish.

Overall height is 84¾"; width, 30 depth, 30½". Shipped knocked do and crated.

Illustrated literature available.

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STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS

...BERG-CARLSON recommends...

"dependable" *means both the trade-mark & the guarantee of cross-arms by*

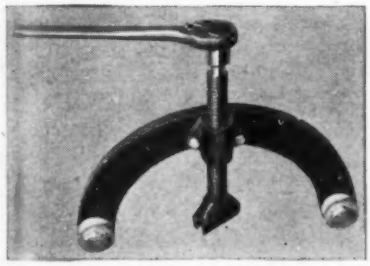
American Cross-Arm Inc.

The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

In Douglas Fir—Creosoted Yellow Pine or Gulf-Red Cypress.

ratchet handle slack puller

made by Cable Spinning Equipment Co.



The same dependable Slack Puller, but with a ratchet added. This type of handle enables the operator to pull slack with the Little Giant Slack Puller, requiring even less effort than would be needed with the conventional model.

The correct tool for those who use the Puller day after day.

Model 1200 B
Single Phase
24 Amps.
50 Volts

flotrol

automatic battery chargers

SUPERIOR IN 5 WAYS:

1. **ECONOMY:** Experience has proven FLOTROL can save on power costs up to 20% per year.
2. **DEPENDABILITY:** Mechanical failures are cut to next-to-nothing because FLOTROL has no moving parts.
3. **RESPONSE:** FLOTROL answers load needs *instantly*—keeps battery fully charged at all times.
4. **LIFE-SAVING:** FLOTROL works while your battery rests—gives any battery longer life.
5. **SAFETY:** Automatically limits current to safe value on overloads.

FREE! Write for Bulletin 137, a complete catalog of FLOTROL, its technique, and its models.

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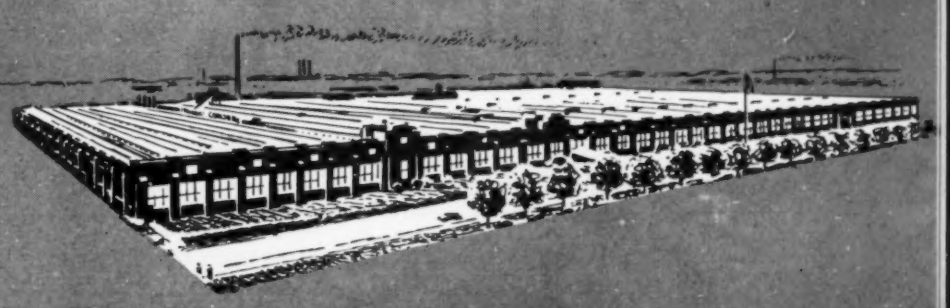

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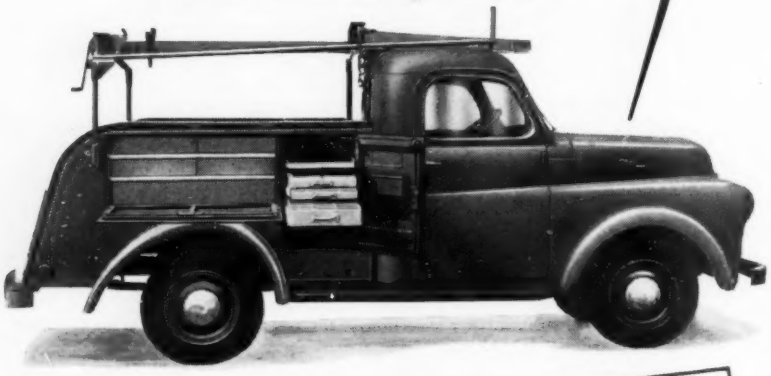
model 4978

Public Utility BODY



★ Practical . . . because all material and tools for light duty work are conveniently located.

★ Flexible . . . because standard and optional equipment are available to accomplish your specific job quickly and economically.

★ Efficient . . . because all material and tool arrangements are in logical sequence and available for daily inventory.

Get the facts on the Model 4978 Body designed for installation on a standard ½ ton chassis. Write for Bulletin No. 927 today!

YORK-HOOVER BODY DIVISION CORPORATION

YORK, PENNA

national telegraph merger and approval of another phase of the Western Union plan, that it provide all telegraph facilities for the armed services. Armed service personnel, of course, would do the actual operating.

It was felt immediately by some observers that considerable protest would arise from TWX users if Western Union were slated to take over TWX service. Such action, incidentally, would require FCC sanction as well as determination of a fair rate base by the Commission and negotiation of a fair price by the parties concerned.

Union protests also were felt immediately, with the strongest coming from the American Communications Association, which represents Western Union workers in New York City, as well as some international communications employees. Implied criticism came from the Communications Workers of America, which said it was taking no definite stand but recalled that telephone employees previously had registered opposition to such a proposal in the interests of job security.—THE END.

Michigan Independents Reelect R. E. Putnam

More than 300 telephone men and women gathered at the Hotel Olds, Lansing, Mich., Sept. 22 and 23 for the 14th annual convention of the Michigan Independent Telephone Association.

The convention elected the following directors: J. F. Van de Vusse, Owosso, to succeed B. C. Schweitzer, Owosso; Russell Shafer, Pinconning, to succeed John Maser, Au Gres, and L. W. Reynolds, Ontonagon.

The directors elected the following officers: President, R. E. Putnam,

W. H. WAGNER, Detroit, Bell-Independent activities supervisor of the Michigan Bell Telephone Co., watches W. J. MELCHERS, Owosso, register for the convention.

Muskegon; vice president, Ross M. Brown, Brooklyn; secretary, F. B. Twigg, and treasurer, Mrs. Jane McNally.

Both state and national problems relating to the industry were on the agenda as representatives of Michigan's 154 companies got together. Gov. G. Mennen Williams spoke the first day of the convention along with John H. McCarthy, chairman of the Michigan Public Service Commission.

Speakers included Clyde McFarlin, Montezuma, Ia., president of the Iowa Independent Telephone Association; Leon Roberts, Portsmouth, Ohio; William H. Wagner, supervisor of Independent company relations for the Michigan Bell Telephone Company; Francis X. Welch, managing editor Public Utilities Fortnightly, and R. G. Madden, field engineer, I. T. & T. Co., New York City.

Operating practices were discussed the second day at a special traffic department session.

T. C. Callister Heads Rocky Mountain Group

The Rocky Mountain Telephone Association held its third annual convention in Salt Lake City, September 22-23. The convention was well attended by telephone company representatives form the several states in the Rocky Mountain area.

The convention elected the following directors: T. C. Callister, Fillmore, Utah; J. W. Corbin, Moab, Utah; Vincent Chioeo, Tremonton, Utah; W. W. Blazzard, Kamas, Utah; D. A. McLean, Denver; H. P. Morgan, Eagle, Colo.; H. R. Bean, Cascade, Ida.; J. W. Baker, Spokane, Wash.; F. C. Janzen, Rockland, Ida.; Richmond R. Mann, Tierra Amarillo, N. M.; Mills Roberts, Hobbs, N. M.; Osborne Low, Afton, Wyo.; Mr. Haas; R. R. Manuel, Browning, Mont., and George Stoner, Lincoln, Mont.

Officers elected by the directors are: President, Mr. Callister; vice president, Mr. Janzen, and secretary-treasurer, Mr. Baker of the Interstate Telephone Co., which operates exchanges in Idaho.

T. D. Odle Heads Tennessee Association

The Tennessee Independent Telephone Association held its annual convention at the New Southern Hotel, Jackson, Tenn., September 16, 1949.

The following officers were elected:

Poles and Crossarms

You're sure of deliveries on schedule when you order poles and crossarms from Graybar.

We supply full-length, pressure-treated poles and Douglas fir crossarms. The high, rigid standards these materials have to meet are your assurance of outstanding strength, endurance, and uniformity — adding up to long service.

...and Pole-Line Supplies

The insulators, wire, strand, hardware, and tools that Graybar distributes are all made by leading manufacturers.

Whenever you order telephone supplies from Graybar, you not only get first-quality items — you get delivery from a near-by Graybar warehouse, saving valuable time in either emergency or regularly scheduled shipments.

You can confidently give your near-by Graybar Telephone Specialist the responsibility of meeting *all* your electrical supply needs — accurately, quickly, and economically.

Graybar Electric Company, Inc.
Executive offices: Graybar Building, New York 17, N. Y.

4911

Everything in Telephone Supplies Via GraybaR

IN OVER 100 PRINCIPAL CITIES

Among those attending recent convention of Tennessee Independent Telephone Association were (seated, from left to right): James N. Cox, Cookeville; R. Lee Wheat, Lewisburg; C. W. Chastain, Cookeville, Horace W. Vaughn, Waynesboro. (Standing—from left to right): A. E. Reynolds, Bristol; T. D. Odle, Parsons Telephone Co., Parsons; J. B. Avery, Sr., Railroad and Public Utilities Commission of the State of Tennessee; John J. Moran, Southern Continental Telephone Co., Cookeville; W. S. Argabright, Inter-Mountain Telephone Co., Kingsport, and W. S. Howard, Millington Telephone Co., Millington.

president, T. D. Odle, Parsons; vice president, John J. Moran, Cookeville, and secretary-treasurer, C. W. Chastain, Cookeville.

A. Wayne Berry Dies In Cape Girardeau, Mo.

A. Wayne Berry, vice-president and general plant superintendent of the Southeast Missouri Telephone Co., Cape Girardeau, Mo., and a pioneer in the communications field, died October 27. He had been sick for several months.

Continuously with the telephone company and its predecessor, the Cape Girardeau Bell for 40 years, Mr. Berry became wire chief on June 1, 1909, was made superintendent of the plant in 1911, elevated to general plant superintendent in 1924 when the Southeast Missouri company was formed and in 1937 became vice-president.

Mr. Berry started his career early in the communications field. As a boy of 17 he worked as messenger and night operator for the Cumberland Telephone & Telegraph Co., Dyer, Tenn., being paid, as he often told, a salary of $5.00 per month. Four years later he became affiliated with the then Senath (Mo.) Telephone Co. as lineman and in that capacity built the first telephone line from Hornersville to Cardwell.

Mr. Berry is survived by his widow; two sons, Wayne J. Berry of St. Louis and Wm. L. Berry of Sikeston; two daughters, Mrs. Thelma Louise Crowley of Madison, Wisconsin, and Mrs. Betty Jane Chism of Cape Girardeau, and seven grandchildren.

Mr. Berry was a member of the Missouri Society of Professional Engineers, and served on the state board of directors. He also was a member of the Independent Pioneers and Telephone Pioneers of America, and was president of the John Tlapek chapter for one year.

Pennsylvania Tel. Corp. Wins Report Award

In the final rating of an independent board of judges for the Financial World Annual Report Survey, Pennsylvania Telephone Corp., Erie, Pa., was judged as having the best 1948 Annual Report of the communications industry.

More than 4,500 corporation annual reports were submitted in this national survey, the ninth in the series, and these were judged in one hundred industrial classifications for "Best of Industry" awards. In the "communications industry" category Illinois Bell Telephone Co., (Chicago, Ill.) was runner-up for top honors, while Bell Telephone Co. of Canada, Montreal, took third place.

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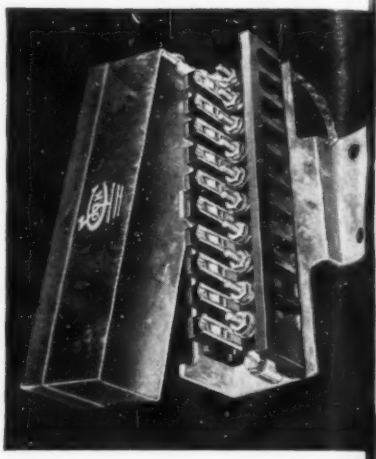
cook type 7
high-potential lightning arrester



Outdoor pole type arrester p
vides lightning protection a
atmospheric static drain for f
pairs of open-wire circuits, or
drop wires and cables leading
unprotected terminals.

Equipped with:

1. Single piece molded Bakelite i
lation and fanning strip for stre
and high resistance. Fanning s
is closed with a thin film of B
lite until drops are run.
2. Non-corrosive metal hood, l
dur studs and galvanized mou
bracket for long service life.
3. Phosphor-bronze spring clip
accommodate Cook Tru-Gap
grounding lightning discharg

STROMBERCA

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS

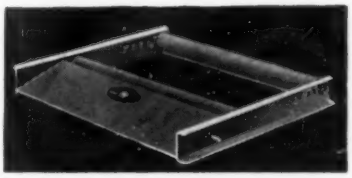
ERG-CARLSON recommends...

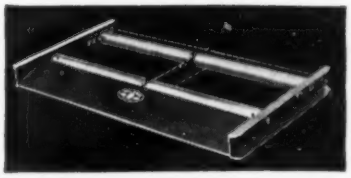
for accurate and rapid wire stringing or checking USE the dillon dynamometer

There's no guessing or uncertainty when a scientific Dynamometer is used to check wire tensions. *Easy* to use, *easy* to read, dead accurate. Works on new leads going up or *old* leads long established. Hundreds of satisfied owners in telephone and power fields. Reasonably priced. Decide *now* to save time and money with this useful tool. Prices on request.

roll-a-reel

handles heavy reels quickly, economically, and safely





STYLE A (top) Width 30″; Depth 28″; Height 3½″. Weight, 50 lbs. Capacity, 2000 lbs. Supports up to one 28″ wide reel.

STYLE B (below) Width 52″; Depth 28″; Height 4″. Weight, 110 lbs. Capacity 4000 lbs. Supports two 24″ wide reels or up to one 48″ wide reel.

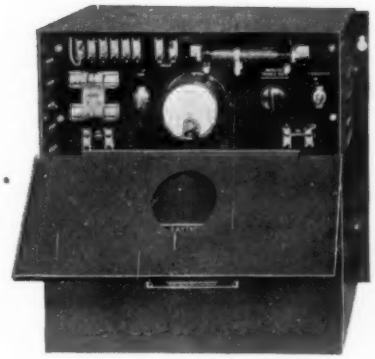
- Sturdily built, with heavy gauge steel frame to roll reels of wire, cable, steel strand or ropes.
- Separate sets of rigidly aligned ball-bearing rollers for each side of the large reels. No slipping or friction between rollers and reel.
- Ball-bearing rollers are at same level, so that cable can be safely taken from front or back, top or bottom.
- Amazingly low cost.

... dependable battery charging with the raytheon recticharger*!

A small storage battery floated across the terminals of a Raytheon Recticharger provides closely stabilized DC voltage . . . longer battery life . . . and improved operation of manual or automatic telephone systems.

These are *proven* advantages that stem from exclusive design and long service to the telephone industry.

When replacing, expanding, or modernizing switchboard equipment, utilize Raytheon's extensive field experience and complete line. Available from 1.0 to 24.0 amperes with either 24 or 48 volt output.



*Reg. U. S. Pat. Off.

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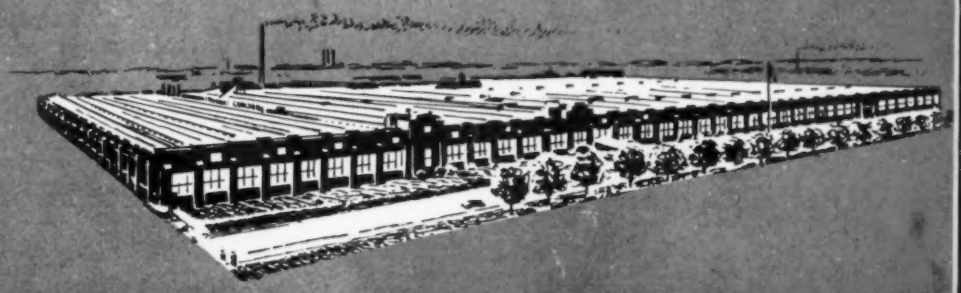

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HE WORKS SAFE!

BELT No. 88

BASHLIN'S Tool-Dee Belt
10" Body Movement

The sliding tool loops keep tools always within easy reach. The built-in extra safety factor saves the Safety Strap from wear . . . and, man, it's comfortable too! When it's a Bashlin Safety Belt, you *know* it's right.

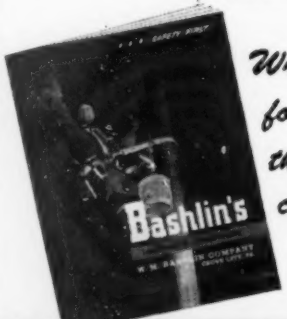
One piece aluminum sleeve adjusts from 15" to 18" in multiples of ½". Locked in place with standard steel screws.

Another First

Comfort on the job, lightness and safety combine in Bashlin's adjustable Climber with removable gaff . . . Forged of aluminum alloy, the Bashlin Climber is lighter than conventional climbers and the *Same Strength* as *Equivalent Steel*. It's form fitting and has all the original Bashlin features.

No. BD 14

Removable gaff forged from alloy steel, features triple locking device with standard tested steel screws.



Write for this catalog

W.M. BASHLIN COMPANY
GROVE CITY 1, PA.

MRS. ELLEN NEALE (right), photographed during recent USITA convention as she explained Cable Spinning equipment to R. B. FAIRLY, Lubbock, Texas, and other interested onlookers.

Kansas Women Make History

THE TRADITIONS established by the courageous women pioneers of Kansas when it still represented the western frontier, apparently survive for several women in that section of the country are still pioneering, stated a recent item in the Wichita (Ks.) Eagle.

Mrs. Georgia Neese Clark of Richland, Ks., recently appointed treasurer of the United States, is one outstanding example. Another is *Mrs. Bertha Ellen Neale*, Topeka, Ks., who is well known as the manufacturer of highly technical equipment for the stringing of telephone cables over the nation.

Mrs. Neale, the only woman ever to build up such a manufacturing plant, not only created the organization from the ground up, but supervised it and takes her company's products once a year to every state to exhibit them at telephone conventions.

Mrs. Neale is like the pioneers of the frontier in the respect that in building up her manufacturing company (the Cable Spinning Equipment Co.) she stood beside her husband, *D. J. Neale*, owner of the Neale Construction Co., which strings telephone lines across the United States wherever a line is needed.

He is an inventor on the side and has 12 patents either granted or in process. First and most important is the cable spinner, which is not only his chief invention, but Mrs. Neale's chief product.

This is an ingenious device which allows as many as three cables to be spun and bound together, in the air.

The Florida Power and Light Co., wanted a cable spinner because the conventional open-wire construction was not suitable because of building concentration, congestion of cables on existing pole lines and heavy tree growth.

Neale came up with the required design and Mrs. Neale produced the equipment. It has been steadily remodelled and improved, and Mrs. Neale's company now has a rapidly expanding business with the latest model becoming practically standard equipment in all parts of the world.

Mrs. Neale is proud of the company which she has built up, and particularly of her staff, which include seven veterans and two women. The women are *Helen Bower* and *Juanita Wagstaff*, who have been with the company since it started.

"They can operate any machine in the shop," said Mrs. Neale, "and even at work they look feminine."

It also is quite appropriate to associate Mrs. Neale with the early women pioneers, for work and hard weather hold no terrors for her. Her business responsibilities often take her to other states, while her husband's take him into rough country. To him stringing cable in temperatures 10 and 15 degrees below zero up near the Canadian border is just part of the job, and it does not stop Mrs. Neale from going there either.

New, ultra modern central office of the Indiana Associated Telephone Corp., Elkhart, Ind.

Elkhart's Modern Building

By H. E. Hussey

Indiana Associated Tel. Co.
Elkhart, Ind.

WHEN THE Elkhart, Ind., Telephone Exchange was cut from manual to dial operation on the night of October 7, it represented the culmination of many years of engineering research and an investment of several million dollars by the Indiana Associated Telephone Corporation, a division of the East Central Group of the General Telephone System.

Included in the investment is a new central office which is the most modern architectural achievement in this city of 40,000 population.

The building is a three story and basement structure, the interior of which is designed for the maximum convenience of employees and the public.

The building is 90 feet wide, 104 feet deep, and 56 feet above grade. The total area is 9,000 square feet, and its cubic content is 588,000 feet.

The frame of the structure is of reinforced concrete. Exterior walls are of variegated Indiana limestone with a carnelian granite dado extending from sidewalk level to the second floor line along both street sides. The two street sides have an aluminum lighting trough at the second floor line so that the exterior may be artistically illuminated at night.

Windows on the first and third floors are double hung aluminum with thermopane glazing. The revolving door and other exterior doors are aluminum. For reasons of safety, glazing in all exterior doors is of tempered glass. There are no windows or openings on the second floor, thus preventing the entry, to a great extent, of smoke or dust, which is always harmful to dial switching equipment. For the subscribers' convenience, a night depository is installed at one side of the main entrance.

The 20-year bonded roof is tar and gravel over two inch cork insulation. On the roof is a cooling tower and a 102 foot tower which supports a telephone base station antenna which radiates the radio frequency energy for mobile telephone subscribers within a radius of 30 miles. The antenna tower is lighted and painted according to C.A.A. requirements. The lighting is controlled by a photo electric cell.

The new central office is heated by two oil fired steam boilers. In the basement are two gas engine generators, each of 125 KVA capacity. The motors can be operated singly or in synchronism according to load requirements. Starting of the engines is manually controlled. The generators are available for emergency use during commercial power failures and can furnish all essential lighting and power needs. Also in the basement are the cable vault, janitors' quarters, and store rooms.

The building is completely air conditioned and cooled. The conditioner unit in the basement serving the basement and first floor, and the unit on the third floor serving that floor have renewable metal filter cells. The conditioner unit on the second floor which is occupied by the dial switching equipment and associated power and ringing machines has electrostatic filters. Each of the three systems include fresh and return air chambers; unitary conditions have steam coils and cooling coils with automatic temperature regulation.

Wherever practicable ventilating ducts as well as all conduit and piping are concealed. All floors are served by a modern elevator with selective, collective button operation with and without attendant features. Western Union clock service is used throughout the building. A pneumatic tube system for service orders and inter-office mail is installed to facilitate rapid delivery.

Offices, operating room, corridors and stairwell walls are plastered and painted in pleasant pastel tones. Walls in the public lobby, commercial office, and first floor corridors have a wainscot of marble. Equipment rooms on the second floor and the terminal room on the first floor have walls of glazed brick, buff in color. The basement floor and walls below grade are waterproofed.

All offices, operating room, and first floor public lobby and corridors have suspended metal lath and plastered ceilings with acoustic treatment. The acoustic tiles in the operating room are carried down the walls to six feet from the floor.

Floors in the commercial office and lobby, first floor corridors and vestibules, and all toilet, shower, and locker rooms are of terrazzo. Metal stairs and landings with aluminum handrail protection are also covered with terrazzo. Other floor areas with the exception of the basement, mechanical rooms, and janitors' closets have 3/16" thick asphalt tile flooring.

The first floor is occupied by the beautiful public lobby, terminal room, and commercial and other offices and departments. The lighting fixtures in the spacious public lobby are concealed and give indirect il-

(Please turn to page 68)

Hundreds of Independently Owned Telephone Companies Planning On Starting Improvement and/or Expansion Programs as Soon as Loans Are Approved! (See page 39).

TELEPHONE ENGINEER'S Research Department reports the following figures as an estimate of improvement and construction costs of the Bell and Independently owned telephone companies for 1949.

Bell System	**$1,185,000,000**
Independent Companies	**296,000,000**
Total	**1,481,000,000**

It is predicted that, with continued rate increases being granted many telephone companies . . . plus . . . the $25 Million appropriated for rural line extension and development, 1950 should break all records in the amount of money spent for improvements and construction.

★ ★ ★ ★ Manufacturers and Suppliers can economically develop this entire market through TELEPHONE ENGINEER Publications ★ ★ ★

The FIRST STEP towards developing this market should be listing and displaying your products or services in the big . . .

1950 TELEPHONE COMPOSITE CATALOG & BUYERS' DIRECTORY

The Only Telephone Composite Catalog & Buyers' Directory Sent Annually to EVERY Telephone Company in the Western Hemisphere

$45,000 Order from Bolivia

One manufacturer reports receiving a $45,000 order from Bolivia as a result of a quarter page ad costing but $70 in the 1949 issue.

Many of the telephone companies of S.A. that depended on Germany, England and Sweden for equipment before the war are now looking to U. S. manufacturers for their needs.

You get business from where you seek it.

EVERY Telephone Company Qualified to Borrow from REA Regularly Receives and is Familiar with the Composite Catalog & Buyers' Directory

The 1950 Telephone Composite Catalog & Buyers' Directory will Display Your Wares or Services Alongside Selling Efforts of ALL Manufacturers Serving the Industry!

The
SECOND STEP
in developing this market . . .

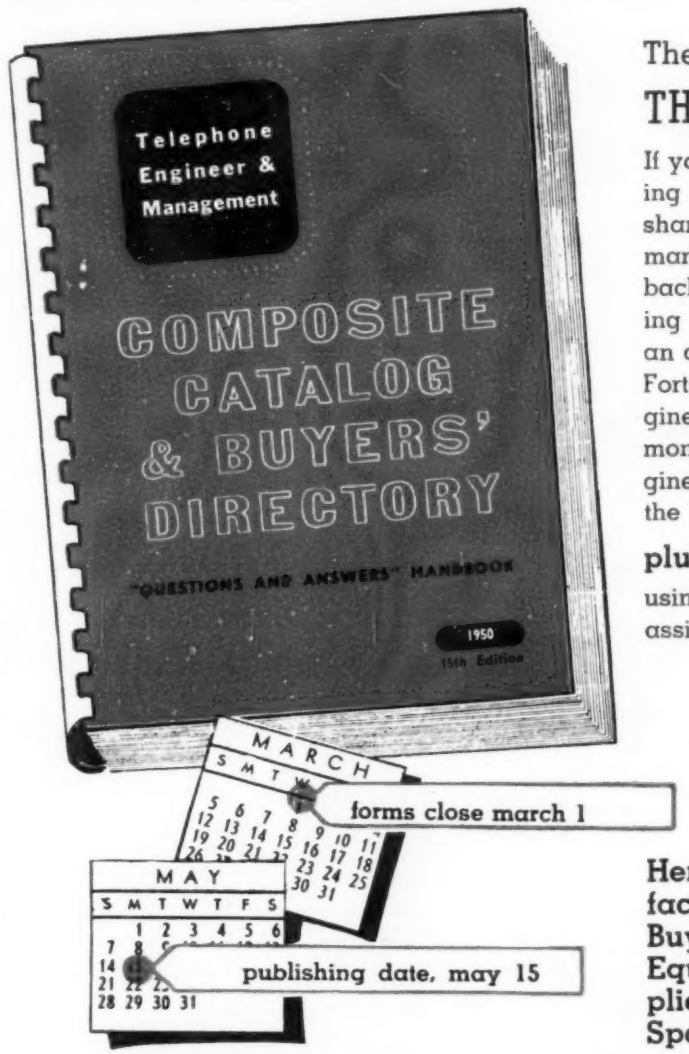
Augment your listings in the Buyers' Directory section with "selling copy" display space.

In preparing advertisements describe each item carefully, pointing out all uses, advantages, etc., etc. Quote prices and delivery date if possible . . . and invite immediate orders.

Catalog type copy is used to advantage by many firms.

Advertisements of all sizes . . .

Advertisements ranging in size from column inches, sixth pages, quarters, thirds, halves and/or two-third pages can be placed under or facing product listings in Buyers' Directory section.



The
THIRD STEP

If you are planning on going all-out for a large share of the telephone market you will be wise in backing up your advertising in the Directory with an advertising program in Fortnightly Telephone Engineer on the 1st of each month and Telephone Engineer & Management on the 15th of each month . . .

plus

using our DIRECT MAIL assistance.

Write for complete information about our Direct-Mail service.

Here's Where Manufacturers Meet ALL Buyer's of Telephone Equipment and Supplies. Reserve Your Space Today!

Catalogs . . . Reprints . . .

A number of companies use 2-4-6-8-12 and 16 pages in the Composite Catalog. Some of these represent entire catalogs of the advertiser. Reprints for direct mail use are available at reasonable prices. If you are planning on printing a catalog it is possible that we can incorporate it in this directory . . . and furnish reprints at an attractive price. Write us.

Complete "WHERE-TO-BUY-IT" Information

This huge storehouse of information presents the names and addresses of 861 manufacturers serving needs of the telephone industry. In the section devoted to "Product Information" there are listed 4,554 sources of supply of approximately 500 different items used by telephone companies. 760 trade named items such as "All Purpose"—"Auto Air"—"Formula 21"—"No-Rench"—"Tirex"—etc., are explained and the name and location of their makers are given. The Composite Catalog section pictures and describes switchboards, telephones, booths, mobile radios, batteries, truck bodies, pole line hardware, diggers, trenchers and many, many items used by telephone companies.

Complimentary Copies upon request. Write Telephone Engineer Pub. Corp., 7720 Sheridan Road, Chicago 26

Party Line Transmission and Ringing Improved with Vincent Rare Gas Relay

May be Used with Harmonic or Coded Bells

Vincent Rare Gas Relay, RTC- 2. Ready for Mounting.

End objectionable noise interference due to transient and induced voltages, and provide additional lightning protection in bell circuits, with the Vincent Rare Gas Relay. Compact, non-mechanical, the Vincent Rare Gas Relay is easily inserted in the bell box, or at the ground connection or protector block on compact handsets, in series with each bell. It needs no further maintenance.

Since the resistance of the relay is practically infinity below 60 volts, its normal breakdown voltage, the line remains normally free from paths to ground. Ringing voltage of 85 volts ionizes the rare inert gases, is transmitted without difficulty.

The Vincent Rare Gas Relay may be used on magneto or common battery lines. Over 100,000 in daily use! Write for details.

L. S. BRACH Mfg. Corp.

Dept. X, 200 Central Ave., Newark, N. J.

NO. 6109-D

PONY PINTYPE

$37.50 Per M

F. O. B. Factory

ORDER NOW

Finest Quality Electrical Porcelain, Brown Glaze, One Inch Threaded Pin Hole. 2-3/16" Diameter, 3-1/8" High. You'll Like Them. Satisfaction Guaranteed.

and for Perfect **INSTALLATION SERVICE**

Made to guarantee top quality in insulation and top performance on your telephone installations. A complete and diversified line with each item especially engineered and produced to exacting specifications for telephone service.

Sold through your jobber. Write direct if he does not carry the P.P. line.

SCREW EYES

C KNOBS

S KNOBS

T KNOBS

No. 6062

STRAINS TREE KNOBS No. 4-2 GR. TUBES

PORCELAIN PRODUCTS, INC.
FINDLAY, OHIO

lumination. There are two circles of fixtures, one at a 10 foot diameter and the other at a 30 foot diameter centered at a marble column in the middle of the lobby. Flourescent lighting fixtures in all offices and in the operating room have Holophane lenses to diffuse light to the intensities designed to provide the proper illumination. In the public lobby on the side opposite the commercial office are two telephone booths and one customer courtesy room with marble shelves and wainscot. The upper parts are acoustically treated. A circular check writing desk of marble forms the lower part of the central column in the public lobby. The cashier's counter, also of marble, is of the same height as the check writing desk and the wainscot.

The second floor is devoted entirely to the dial switching equipment and associated power machinery.

The third floor contains the toll operating room, and other associated traffic department offices.

Nylon Cord Display Interests Conventioners

Hundreds of persons saw the new Nylon telephone switchboard cordage being actually woven at the Runzel Cord & Wire Co. exhibit during the USITA Convention at the Stevens Hotel according to R. M. Sanders in charge of the unique demonstration.

A complete unit of cord braiding equipment was removed from the production line at the Runzel factory and transported to the company's display room.

The display, from communications personnel viewpoint was instructive. To casual visitors it was educational and interesting, as they had no conception of the intricate procedure involved to produce such a commonplace thing as a telephone cord.

The Runzel company reports some interesting facts concerning its new development . . . "VN" series NYLON telephone switchboard cord. In addition to its waterproof qualities, the new cord has great tensile strength and is exceptionally tough and durable. The "beauty of Nylon" as is evidenced by its universal appeal to the fair sex is also carried into this new and unusual product . . . the sheen of Nylon is at once recognized.

The Runzel exhibit was in constant attendance throughout the 4 days of the convention by company representatives, including W. L. Runzel, Jr., R. M. Sanders, Roy J. Keller and Miss Lois Herrmann.

Coming 1949-50 Conventions

Alabama Independent Telephone Association, Jefferson Davis Hotel, Montgomery, Nov. 17 *and* 18.

Texas Telephone Association, Plaza Hotel, San Antonio, Mar. 6, 7, *and* 8, 1950.

Illinois Telephone Association, Abraham Lincoln Hotel, Springfield, Mar. 22 *and* 23, 1950.

Nebraska Telephone Association, Paxton Hotel, Omaha, Mar. 28 *and* 29, 1950.

Iowa Independent Telephone Association, Fort Des Moines, Des Moines, Apr. 4 *and* 5, 1950.

National Executives' Conference (United States Independent Telephone Association) Edgewater Beach Hotel, Chicago, Apr. 17 *and* 18, 1950

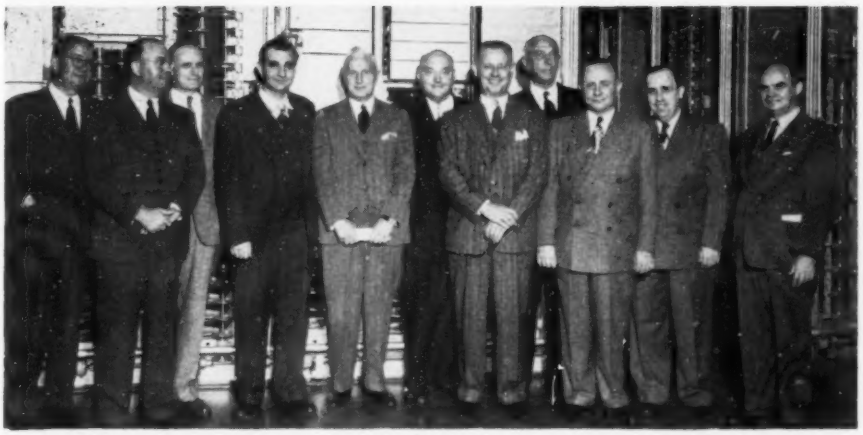
Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, Apr. 24, 25, *and* 26, 1950.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 3 *and* 4, 1950.

Pennsylvania Independent Telephone Association, Lawrence Hotel, Erie, May 8 *and* 9, 1950, *(Tentative).*

Kansas Telephone Association, Jayhawk Hotel, Topeka, May 16 *and* 17, 1950.

New York State Telephone Association, Seneca Hotel, Rochester, May 24 *and* 25, 1950.



Officials at the cutover of the Federal 7A-2 Rotary Switching System at Elkhart, Ind. Left to right: G. HERBERT SEMLER, director, General Telephone Corp.; DONALD C. POWER, counsel, General Telephone Corp.; HAROLD V. BOZELL, president, General Telephone Corp.; PAUL MALMGREN, chief switchman, Indiana Associated Telephone Corp.; GEN. WILLIAM H. HARRISON, president, International Tel. & Tel. Corp.; EDWIN M. BLAKESLEE, president, Associated Telephone Co. Ltd.; F. E. NORRIS, vice president, General Telephone Service Corp.; ROBERT A. GANTT, vice president, International Tel. & Tel. Corp.; BURTON W. SAUNDERS, president, Illinois Commercial Telephone Corp.; J. G. WALKER, equipment engineer, Indiana Associated Telephone Corp.; L. J. DENNEY, director, telephone division, Federal Telephone & Radio Corp.

Elkhart Celebrates Cutover To Dial

Under its continuing program of improvement and expansion, Independent telephony in the United States took another important step forward on October 7, when the Indiana Associated Telephone Corporation, a subsidiary of the General Telephone Corporation, converted to automatic operation its entire manual network in the city of Elkhart, representing approximately 16,000 stations.

The all-in-one cut-over, involving automatic equipment with a capacity of 8,600 lines and 17,000 terminals, was one of the largest of its kind made by an Independent operating company in recent years. It marked Elkhart as the second city in the United States to place in operation the 7A-2 Rotary dial switching system manufactured by Federal Telephone & Radio Corporation, associate of International Telephone & Telegraph Corporation. The first major cut-over of Rotary in this country was in August, 1948, by the Rochester Telephone Corporation, Rochester, N. Y.

Elkhart's inauguration of Federal Rotary dial equipment took place in Indiana Associated's new, strikingly modern three-story central office building located in the downtown district. Constructed of polished brown marble, smartly appointed, air-conditioned, and equipped with the latest in air cleaning systems, it is one of the most attractive and efficiently planned units of its type in the industry.

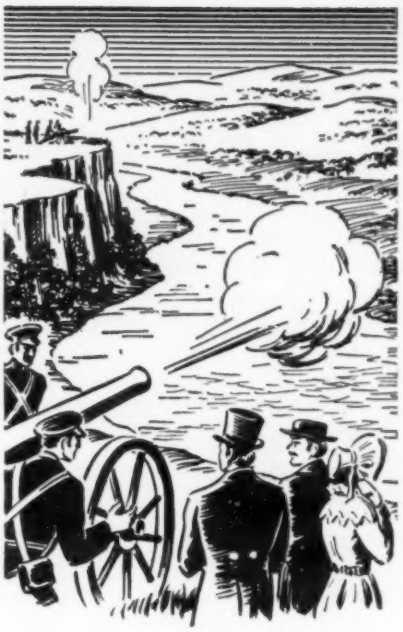
The event was proclaimed "Dial Day" by the city of Elkhart and the Elkhart Chamber of Commerce. The day's ceremonies were climaxed by a banquet prior to the actual cutover at 11 p.m. and the cutover was accomplished in one minute and 16 seconds. The first call was put through by Charles S. Beardsley, oldest living member of the family which established Elkhart, to Mayor Walter Larson.

There were numerous outstanding figures of the telephone and communications world who went to the Indiana city to participate in the "Dial Day" ceremonies.

Conversion to equipment, including the new building, cost the telephone company $3,300,000. This was in addition to expenditures during recent years to improve the manual system and extend its service.

The Elkhart installation includes a 24-position toll board, a 4-position route and rate desk, and a 4-position special service desk (for information, intercept, etc.), a 4-position combined local and toll service observation board, a 6-position combined local and toll test board, and a 2-position repair service desk. Dial service assistance calls are handled on the toll board. There is also provided a pneumatic tube ticket distributing system between the toll board and route and rate desk for rapid handling of toll tickets.

In order to provide rapid completion of inward toll calls to Elkhart numbers, the toll board is equipped with key sending sets. The positional circuits are also arranged for the contemplated use of multi-frequency key sending on long distance circuits.



How gunpowder carried the news to New York

"THE Erie Canal's open!" rumbled the cannons' mouths in 1823. Hilltop to hilltop the news flew, from Buffalo to New York City, a three-day journey in those days.

Artillery pieces, placed high on the Hudson's ramparts and along the route of the infant waterway, carried the tidings. One hour and a half later, New York harbor went bedlam in salute. "The Erie's open!"

Today a vast network of wire and cable serves the world's communication needs. Hemingray Insulators play an important part in contributing to its efficiency. Over 80 years' experience helps make them the industry's standard.

Hemingray Number 110

This advertisement is one of the Hemingray series on the history of communication.

HEMINGRAY INSULATORS

American Structural Products Company

MUNCIE, INDIANA

Subsidiary of **Owens-Illinois Glass Company**

J. F. Bozzelli Joins L. S. Brach Mfg. Corp.

C. Philip Galloway, sales manager of the L. S. Brach Manufacturing Corp., Newark, N. J. recently named Joseph F. Bozzelli, assistant sales manager. Mr. Bozzelli will supervise and direct a new television antenna promotion for the Brach corporation which has been active in the electronic and electrical fields for over 42 years.

Mr. Bozzelli, a member of the Institute of Radio Engineers, has been associated with electronics for the last 10 years. He most recently held the post of sales engineer with the JFD Mfg. Co., Brooklyn, N. Y., where he was in charge of all manufacturing accounts. Prior to this time, he served as sales production manager with the Fred Goat Co. in Brooklyn.

JOSEPH F. BOZZELLI

Automatic Electric To Offer G. E. Radio Equipment

Automatic Electric Company, Chicago, has announced completion of an agreement with General Electric Company, Schenectady, whereby the former will act as distributor in the United States and Possessions for all types of General Electric radio-telephone equipment suitable for telephone use. The Automatic company points out that this arrangement gives timely recognition to the steadily increasing importance of radio-telephone facilities among Independent telephone companies, railroads, pipeline companies and other organizations having requirements for such equipment for use either as separate systems or to supplement existing wire telephone networks.

General Electric radio-telephone equipment to be made available through the Automatic Electric organization includes:

1. Highway and urban mobile systems.
2. Fixed point-to-point radio systems for common carrier or private use in the so-called "micro-wave" and other bands.
3. Radio facilities to serve rural telephone users and other telephone subscribers beyond the economic scope of wire lines.
4. Systems for railroad use.
5. Systems for emergency and disaster application.
6. Auxiliary equipment and materials such as antennas, towers, power units, testing equipment, etc.

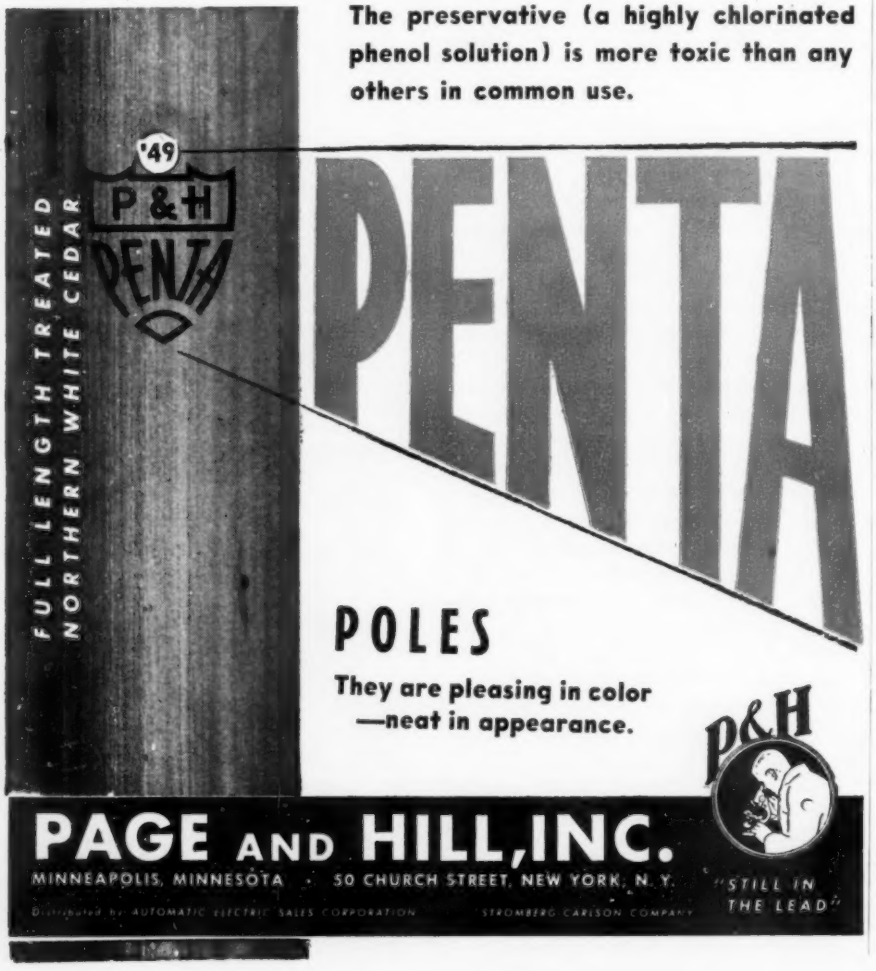
In announcing this agreement, officials of Automatic Electric also point out the importance of engineering radio-telephone facilities with full understanding of the technical problems involved in providing appropriate terminating equipment for connection to telephone exchanges, toll networks, or other wire line facilities. To meet this need, the company some months ago organized an Electronics Department, for the purpose of supplying a comprehensive technical planning and equipment service in the field of electronic applications to telephone needs. The department analyzes customer requirements for such applications, plans their coordination with existing plant facilities, and engineers and supplies equipment for complete projects, including all needed auxiliary structures.

Installation and service of General Electric radio-telephone equipment sold through Automatic Electric will be handled by the latter company which will maintain a staff of engineers and technicians specially trained for this work.

Electric Products Advances Schroeder

G. J. Berry, vice president and sales manager of The Electric Products Co. has announced the appointment of E. G. Schroeder to the position of field sales manager. In his new position Mr. Schroeder will supervise all district sales activities.

Mr. Schroeder brings to his new position a broad experience in electrical sales and engineering. He joined The Electric Products Company in October, 1945 to head-up its Detroit District office.


The preservative (a highly chlorinated phenol solution) is more toxic than any others in common use.
'49
P&H
PENTA
FULL LENGTH TREATED NORTHERN WHITE CEDAR
PENTA
POLES
They are pleasing in color —neat in appearance.
P&H
PAGE AND HILL, INC.
MINNEAPOLIS, MINNESOTA · 50 CHURCH STREET, NEW YORK, N. Y.
"STILL IN THE LEAD"
Distributed by AUTOMATIC ELECTRIC SALES CORPORATION
STROMBERG-CARLSON COMPANY

Chicago greets Alaska: Mayor Kennelly seated at his desk. Standing, left to right, F. M. Parsons, sales manager, C. D. Manning, vice-president and secretary, and H. C. McCluskey, executive vice-president and treasurer, Kellogg Switchboard & Supply. Co.

City and telephone officials of Anchorage, Alaska, assisted by James H. Kellogg, president, Kellogg Switchboard & Supply Co. (standing at the right) make final step in connecting telephone lines to new automatic switchboard which gives Alaskan city complete dial operation.

Kellogg Celebrates Alaska Installation

"Ready with Anchorage," said a long distance operator in Chicago. Mayor Kennelly's City Hall office was at her end of the wire. At the other end was Alaska's largest city. It was 2 o'clock Thursday afternoon, September 29, Chicago time, 10 o'clock a.m. Alaska time, and Governor Ernest Gruening was waiting in his office in Juneau to talk, by way of Anchorage, to the mayor of Chicago.

At the Anchorage station were Mayor Loussac of that city and James H. Kellogg, president of the Kellogg Switchboard & Supply Co., the occasion being the dedication of the first large dial telephone system installed in Alaska. Anchorage was celebrating the event as one of more than ordinary importance in its life as a city now having well over 30,000 inhabitants. The event was of equal importance in the dramatic history of Alaska as a land of both promise and fulfillment. And Kellogg was celebrating the occasion as one of considerable significance in its long record as manufacturer of telephonic equipment.

In Washington, D. C., the Hon. E. L. Bartlett, delegate in Congress from the territory of Alaska, stood by in readiness for talks with Mayor Loussac, Governor Gruening, Mr. Kellogg, and Chicago's chief executive.

At the close of the four-city conversation Mr. Parsons, speaking for himself and the other Kellogg officials, said: "We agree that this event marks a promising era in telephonic communication. Alaska has, of course, had telephone service for many years. We installed equipment in Juneau in 1912, and last year saw Kodiak Island equipped with a small Kellogg dial system. But this large installation in Anchorage is a much longer step forward. Anchorage is growing very rapidly, and it now has as complete and modern a telephone system as can be found anywhere. And the signs are that this installation will be followed by similar improvements in more of Alaska's progressive cities. . . ."

ALPHADUCT WIRES

FOR *All* TELEPHONE REQUIREMENTS

LONG LIFE

Neoprene Jacketed
Drop and Bridle Wire

Weatherproof Braided Drop and Bridle
Interior - Tree - Ground - Switchboard -
Pothead - Cable Terminal - Instrument

Manufactured and Tested to Rigid Specifications

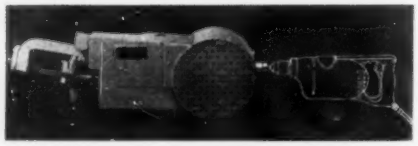
ALPHADUCT WIRE & CABLE CO.

Milltown, New Jersey Telephone: Milltown 8-0030

ADDITIONAL Information on New Products or Service and Supplies of any Advertiser listed in this section may be promptly obtained by filling out the handy request for more information reproduced on the opposite page. All items are numbered. Check number of items on which more information is desired and send to Telephone Engineer Publications. Kindly mention Telephone Engineer Publications when contacting advertiser direct.

the New Products Showcase

New Products & Supplies of Practical Interest



This new power hack saw is operated by any standard electric drill. Weighs only 21 pounds (not including drill). Uses standard 10" hack saw blade. 5" stroke. Overall length (not including drill) 26" 200 strokes per minute when speed of drill is 1240 RPM. Will cut pipe or metals up to 2" in diameter two to ten times faster than hand sawing. All moving parts are protected by safety guards and easily accessible by lifting the hood. Employs a rotary motion, like hand sawing, so never catches or binds. By the motion, the dust is forced out of the cut and drops to the floor. As the blade is held rigidly in position, cuts are remarkably true.—Check New Product 188.

ADVERTISING, Directories—General Telephone Directory Co., 604 Pine Ave., Long Beach, Cal., and 185 N. Wabash, Chicago, Ill.—**[ADV. 4]**

ADVERTISING, Selling—Telephone Directories—L. M. Berry & Co., Hulman Bldg., Dayton, Ohio.—**[ADV. 5]**

ANCHORS, Albion Malleable Iron Company, Albion, Mich.—**[ADV. 6]**

BATTERIES, Dry Cell—The Ray-O-Vac Company, 2317 Winnebago St., Madison, Wisc.—**[ADV. 7]**

BATTERY—WATER UNITS Demineralizers For Tap Water—A. E. Tomkin & Co., 1828 Columbia Rd., N.W., Washington 9, D. C.—**[ADV. 8]**

BELTS — CLIMBERS — COMPLETE LINEMENS' EQUIPMENT, W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.—**[ADV. 9]**

BELTS—CLIMBERS—Miller Equipment Co., Inc., Franklin, Pa.—**[ADV. 10]**

BOOTHS—Acoustic Telephone—Sherron Metallic Corp., 1201 Flushing Ave., Brooklyn 6, N. Y.—**[ADV. 11]**

BOOTHS—Churchill Cabinet Co., 2119 Churchill St., Chicago 47, Ill.—**[ADV. 12]**

CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard.—The Ansonia Electrical Co., Ansonia, Conn.—**[ADV. 13]**

CABLE SPINNING—The Cable Spinning Equipment Company, 432 Crane St., Topeka, Kans.—**[ADV. 14]**

CABLE TERMINALS—Channel Splicing Machine 2415 Roanoke Rd., San Marino, Calif.—**[ADV. 15]**

CONNECTORS, CABLE—Cannon Electric Development Co., 3209 Humboldt St., Los Angeles 31, Calif.—**[ADV. 16]**

CORDS, Instrument and Operators—Commermercial Cord & Supply Co., 26 Main St., Clifton Springs, N. Y.—**[ADV. 17]**

CORDS, Switchboard & Telephone—Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—**[ADV. 18]**

ELECTRIC HOT WATER HEATERS, Thermostatically controlled for any hot water heater.—Vulcan Electric Co., Danvers 17, Mass.—**[ADV. 19]**

ENGINEERING, Construction—Neale Construction Company, 432 Crane St., Topeka, Kans.—**[ADV. 20]**

FIRE POTS, FURNACES, Etc.—Clayton & Lambert Mfg. Co., 1701 Dixie Highway, Louisville 10, Ky.—**[ADV. 21]**

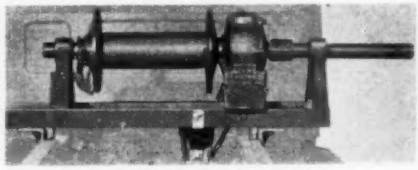
FIRE POTS, FURNACES, Etc.—The Turner Brass Company, 823 Park Ave., Sycamore, Ill.—**[ADV. 22]**

FURNACES—For quickly and economically melting lead and paraffin—Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.—**[ADV. 23]**

INSULATORS, Porcelain—Porcelain Products, Inc., Box 300, Findlay, Ohio.—**[ADV. 24]**

LIGHTWEIGHT PULLERS—Coffing Hoist Company, 800 Walters St., Danville 5, Ill.—**[ADV. 25]**

MAILING SERVICE FOR MANUFACTURERS—We will address and mail your direct-mail sales pieces to every telephone company in the United States. Telephone Engineer Publishing Corp., 7720 Sheridan Road, Chicago 26, Ill.



New drag brake winch will safely handle loads up to 18,000 pounds. In this new winch all heavily stressed castings are made of electric furnace steel. The drum drive shaft is of "stress-proof" steel and is capable of absorbing any sudden power stresses. All operating levers are steel forgings. To give extra protection against shocks and heavy loads, the winch has a large pitch worm and gear.

One feature of this new winch is the improved drag brake and clutch assembly. The hardened steel detent assures positive engagemnt of the clutch which is self locking . . . a decided safety factor. A self-aligning drag brake assures a smooth, constant predetermined drag. Another important feature is the flush type cable clamp. After the cable is fastened the face of the clamp is flush with the surface of the drum.—Check New Product 189.

New cable laying machine digs trench three ft. deep, lays cable and fills trench in one operation. Blade will cut 1½ inch trench to a depth of 3 feet. Cable lead has ball bearings and will run the cable free to lay loose at bottom of trench. Guaranteed not to damage cable or covering. Cutter blade does not disturb surface while laying cable regardless of depth it cuts; fills trench as it proceeds.—Check New Product 190.

PIPE PUSHERS—Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.—**[ADV. 26]**

PIPE PUSHERS—Greenlee Tool Co., 2136 12th St., Rockford, Ill.—**[ADV. 27]**

POLES, Southern Yellow Pine—Colfax Lumber & Creosoting Co., Inc., Colfax, La.—**[ADV. 28]**

POLES, Southern Yellow Pine—Taylor-Colquitt Company, 290 E. Main St., Spartanburg, S. C.—**[ADV. 29]**

POLES, Southern Yellow Pine—Texas Creosoting Co., Orange, Texas.—**[ADV. 30]**

POLE HOLE DIGGERS—For derrick mounted trucks Tel-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.—**[ADV. 31]**

POLES, Contract Inspection & Preservative Ground Line Treatment—Osmose Wood Preserving Co., 1443 Bailey Ave., Buffalo 12, N. Y.—**[ADV. 32]**

PROTECTIVE EQUIPMENT—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—**[ADV. 33]**

GAS-TITE CABLE TERMINALS—Sub station protectors, main dist. frames; central office protectors; interior junction boxes; lightning arrestors.—Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill.—**[ADV. 34]**

RATCHET LEVER HOISTS—Coffing Hoist Co., 800 Walters St., Danville 5, Ill.—**[ADV. 35]**

REBUILT TELEPHONE EQUIPMENT—USED EQUIPMENT BOUGHT AND SOLD—Independent Telephone Repair Co., 1432 W. 15th St., Chicago 8, Ill.—**[ADV. 36]**

REBUILT TELEPHONE & SWITCHBOARDS—Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.—**[ADV. 37]**

RINGING MACHINES—Holtzer-Cabot Electric Co., 125 Amory St., Boston 19, Mass.—**[ADV. 38]**

nd BUYERS' DIRECTORY

Manufacturers and Suppliers Serving the $12,000,000,000 Telephone Industry

SOLDERING IRONS, Electric—Vulcan Electric Company, Danvers 17, Mass.—[ADV. 39]

SWITCHBOARDS, TELEPHONES, Etc.—Automatic Electric Company, 1033 Van Buren St., Chicago 7, Ill.—[ADV. 40]

SWITCHBOARDS, TELEPHONES, Etc.—Kellogg Switchboard & Supply Company, 6650 Cicero, Chicago 38, Ill.—[ADV. 41]

SWITCHBOARDS, TELEPHONES, Etc.—Leich Sales Corp., 427 W. Randolph St., Chicago, Ill.—[ADV. 42]

SWITCHBOARDS, TELEPHONES, Etc.—The North Electric Manufacturing Company, Galion, Ohio.—[ADV. 43]

SWITCHBOARDS, TELEPHONES, Etc.—Stromberg-Carlson Company, 100 Carlson Road, Rochester, N. Y.—[ADV. 44]

TIME RECORDERS—Calculagraph Co., 306 Sussex St., Harrison, N. J.—[ADV. 45]

TREE EXPERTS—Davey Tree Expert Co., Kent, Ohio.—[ADV. 46]

TREE TRIMMERS—Seymour Smith & Son, Inc., Oakville, Conn.—[ADV. 47]

TRUCK BODIES—Artisan Products, Inc., 3540 West 140th St., Cleveland 11, Ohio—[ADV. 48]

TRUCK BODIES—Highway Trailer Co., Edgerton, Wisc.—[ADV. 49]

TRUCK BODIES AND EQUIPMENT—McCabe Powers Auto Body Co., 5930 N. Broadway, St. Louis 15, Mo.—[ADV. 50]

WIRE, Insulated Drop, Genuine Ironite—Paragon Electric Co., Two Rivers, Wis.—[ADV. 51]

WIRE, Insulated Drop, HT Bronze, Paraprene or Braid Insulation—Paragon Electric Co., Two Rivers, Wisc.—[ADV. 52]

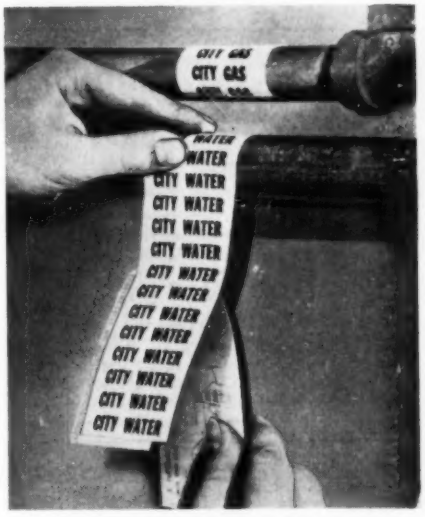
WIRE, TELEPHONE, for all inside and outside uses—The Whitney Blake Co., Box K, Hamden, Conn.—[ADV. 53]

WIRE CUTTERS—H. K. Porter, Inc., 74 Foley, Somerville, Mass—[ADV. 54]

WIRE, Insulated—DATED DROP WIRE—Neoprene or Weatherproof—Alphaduct Wire & Cable Co., Milltown, N. J.—[ADV. 55]

WIRE, Insulated Drop and Bronze or Copperweld—Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.—[ADV. 56]

New hydraulic ladder attachment automatically corrects unlevel ground conditions and provides maximum safety for ladder users. Inter-connected hydraulic units displace oil from one leg into the other as ladders are erected to correct differences in terrain from hillsides to stairways. By moving a foot operated valve lever the ladder can be instantly locked in any position desired. The "Hydra-lizer" has undergone two years research and testing with Southern California public utilities, fire departments, painters, electricians and maintenance men and now is being adopted as standard equipment. The unit is unique as it is designed to be easily attached to all types of ladders, wood or metal, straight or flared base. Telescopic steel tubing automatically adjusts to the proper width and the unit can be reused on ladders of different dimensions.—Check New Product 191.



New Quik-Label Pipe Marker for identifying small diameter pipe & conduit with diameters ranging from 1/4" to 2". A typical pipe marker for small diameter pipe is 2 1/4" x 9" long. The name of the material is printed eighteen times in a background color established by the American Standards Association (Standard #A13). The label is printed as illustrated in bold legible type. The entire 9" long label need not be wrapped around a single pipe. It may be cut right on the card in shorter lengths. Example: for 3/4" dia. pipe, cut off 2 1/2" of label.—Check New Product 192.

SEND IN THIS COUPON FOR MORE INFORMATION

Telephone Engineer Publishing Corp.
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NEW PRODUCTS

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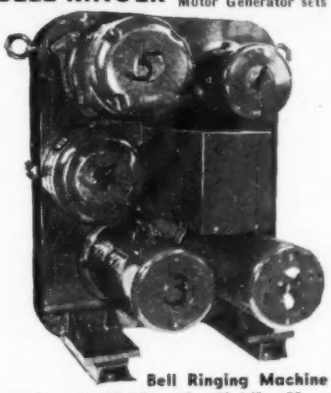

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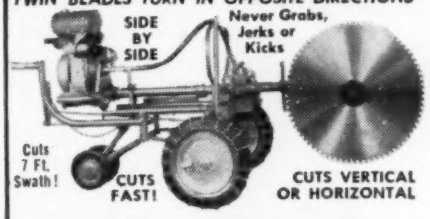

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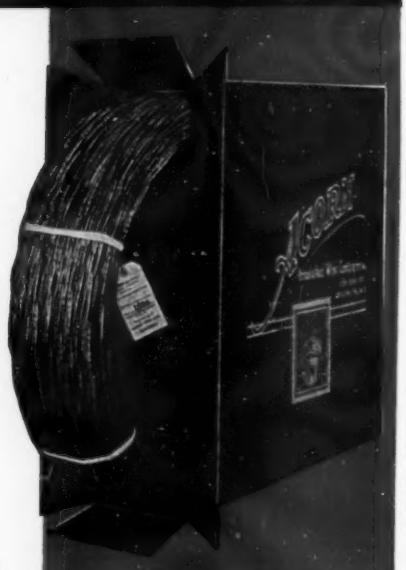

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FRANK B. POWERS

A graduate of the University of Illinois in Electrical Engineering, Mr. Powers joined the Westinghouse Electric Corporation in 1926 as a student engineer and later served as Manager of Engineering in the Transportation and Generator Division. In 1945 and 1946 he made several trips abroad to develop potentials for postwar business. Previously he also served as vice president in charge of engineering for the Baldwin Locomotive Works in Philadelphia.

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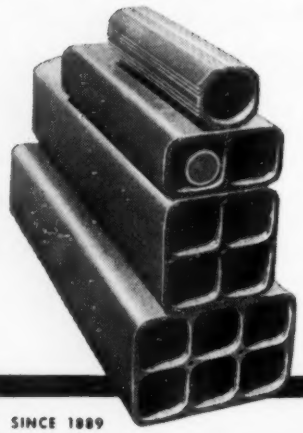

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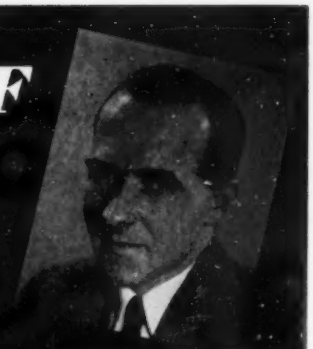

By JOHN G. REYNOLDS
Managing Editor

Good Old Story . . . There is a saying, traditional with one of the leading American companies, that when a director retires, the company hires a new office boy. The concern's magazine observes that there may be an element of exaggeration in this, but that it does indicate the company's "high regard for its junior members and its continuing preference for promotion from within."

The whole telephone industry, in fact, is a splendid example of how opportunity is offered to able and ambitious people. The roster of top executives is liberally sprinkled with the names of men who began as office boys or in some similar position. It's the old story of starting at the bottom of the ladder and climbing up, and it's just as valid today as it ever was.

A lot of fun is made of the Horatio Alger story or rags to riches. But the big thing is that it happens here.

• • •

What Price Profit? . . . All the available evidence indicates that the public at large has a completely erroneous idea of how much profit American industry earns. As an example, one typical survey asked a group of workers what percentage of profit the average manufacturer makes in peace time. The answer was 25 per cent. The same workers were then asked what percentage they would consider a fair profit. The answer was 10%.

What gives this great significance is the fact that, in recent times, American corporate business, taken as a whole, has never made anywhere near the 10 per cent profit that workers seem to consider fair!

The most comprehensive report so far issued on corporate profits was made by the U. S. Department of Commerce, and covers the years 1929-47. It totals the sales and profits of manufacturing corporations. In that period of time, corporate sales reached the stratospheric figure of $1,559,848,000,000. Corporate profits—including two depression years in which losses were taken—came to $65,483,000,000. That is a big figure but it amounts to but 4.2 per cent of sales—less than half as much as a representative group of workers said was fair. In the best year of all, 1929, the profit was only 6.3 per cent.

• • •

You Can Have The High "I.Q.'s" . . . Give us the men who are long on Q. I.!! (Quick Intelligence). More and more educators today are having their doubts about the value of the intelligence tests and I.Q. (Intelligence Quotient) ratings. Though they are still going strong—20 million school children will be given them this coming school year—teachers now realize that many other factors play a part in how one gets on in school and in the world. Social attitudes, character, physical development, personality, and "common sense" are not necessarily tied in with a high I. Q. The most important thing to remember about the I. Q. tests is **not to place too much signficance on them.**

Too often we **over**estimate people's stock of information and **under**estimate their intelligence or ability to grasp and utilize facts. Remember that old Bob Hope gag about Hedy Lamar—"What's she got that other girls haven't got?"—"Nothing, but she groups it better." . . . It isn't the **number** of facts you command that makes you an effective operation—it's your **ability to group them better.**

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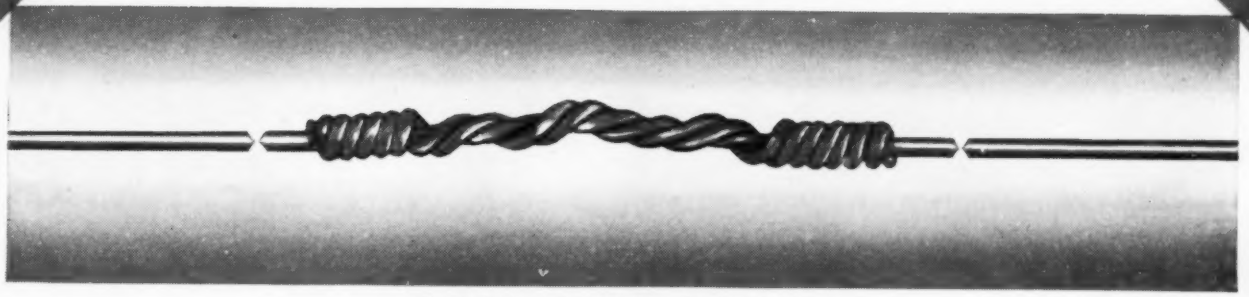
REPAIR SLEEVES

eliminate the need of using a section of wire and two sleeves when old defective splices are being replaced.



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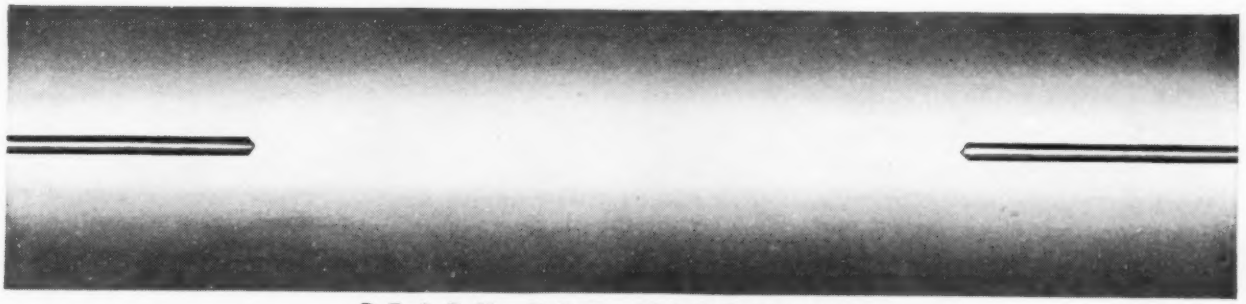

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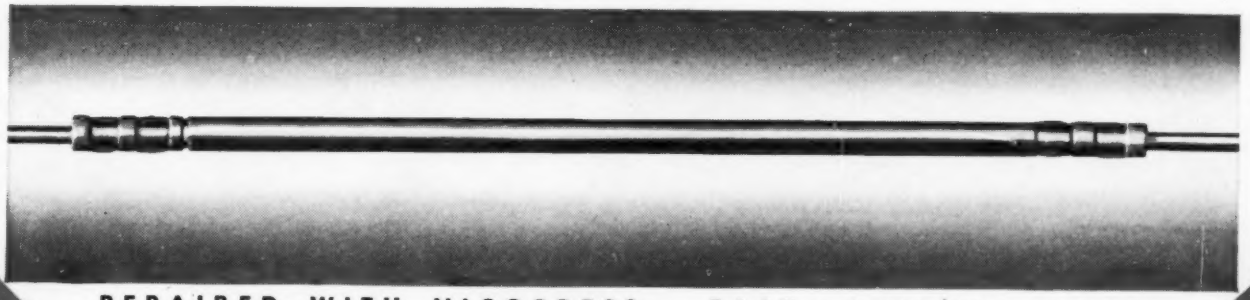

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Every dot a mark of preference
Every dot a superior telephone exchange
Every dot the center of a group of satisfied subscribers
Every dot a producer of profits

What better proof that *North Points the Way!*

NORTH

THE NORTH ELECTRIC MANUFACTURING CO., Galion, Ohio, U. S. A.

Originators of **ALL RELAY** *Systems of Automatic Switching*